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THE
OPHTHALMIC RECORD

111

A Monthly Review of Progress of Ophthalmology.

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ORIGINAL ARTICLES.

THE MYDRIATICS: THE MOTIVE AND METHOD FOR THEIR EMPLOYMENT IN THE CORRECTION OF ERRORS OF REFRACTION.

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The employment of the mydriatics for the correction of anomalies of refraction remains a vexed question in ophthalmology. Notwithstanding the existence of an extensive literature on the subject setting forth much experimental research, and the daily routine experience of ophthalmic surgeons, opinions differ widely, not only as to the motive and method of their employment, but even as to their necessity. The so-called "oculist-optician" is constantly flooding the mails with advertisements condemning the use of these drugs as not only unnecessary but positively harmful; the obvious purpose being to play upon the fears and prejudices of the laity. Having in view these facts it seems opportune that an issue of this journal should be devoted to a renewed study of the anomalies of refraction and the use of the mydriatics in their management and correction by glasses.

The design of the writer in the present paper is primarily to discuss the motive for the employment of mydriatics and incidentally to show the necessity for their use in a very large percentage of cases of asthenopia applying for relief. The opinion that it is not necessary to use these drugs in every case requiring glasses, the writer believes will be in accord with the experience of every ophthalmologist; but that they are required in many cases for their satisfactory or successful treatment he believes will also accord with the views and experience of the majority of his colleagues. It is not the intention to give a resume of the literature of the subject, but rather to present his own views regarding the motive for their employment and the methods which seemed to bear the test of experience.

His practice in correcting anomalies of refraction has borne a definite relation to certain views regarding these anomalies. In the first place the emmetropic eye has been regarded as the model eye, and any departure from emmetropia as an abnormality. The correctness of this view seemed to find demonstration in his school examinations where it was shown that the emmetropic eye not only retained a uniform percentage throughout the different ages of school life, but that it enjoyed a higher acuity of vision, was freer from pain and was less liable to suffer pathological change during the strain of school work than were the eyes with existing errors of refraction.* That is to say, that congenitally defective eyes as compared to emmetropia were liable to suffer impairment, by virtue of these existing defects. They were not only asthenopic eyes, but in a large percentage of the cases the asthenopia was associated with well defined intraocular pathological conditions demonstrable by ophthalmoscopic study. There was present a wide group of phenomena varying from simple hyperæmia of the disc, retina and chorioid, or a general fluffiness of the fundus oculi with more or less obscured nerve margins, to absorption or granular changes throughout the fundus, crescents of chorioiditis at the temporal margin of the nerve, chorioidal atrophies, macular retino-chorioiditis, and the posterior staphylomata and other changes characteristic of high myopia; but all bearing the signs of a common origin, viz.; the results of the eye-strain apparently consequent upon the congenital anomaly of refraction.

It is obvious therefore, granting the correctness of this view, that the prescribing of correcting glasses for these defective and diseased eyes is not the function of the optician, and should not be lightly assumed by the ophthalmic surgeon. When, as the result of eye-strain, the conditions above mentioned have been set up, even in their simpler or less serious forms a group of subjective symptoms are usually present, e. g., headache, undue sensitiveness to light, general nervous symptoms and more or less impairment of function.

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* *Vide.* System of Diseases of the Eye, Norris & Oliver. Vol. II. Article School Hygiene, by S. D. Risley, M. D.

It is obvious that if there exists a relation of cause and effect between these pathological states of the fundus, the asthenopia, and the existing anomalies in the form of the eyeball, the first duty of the surgeon is to remove the cause of these conditions by correcting the error of refraction by glasses, and thus do away with the eye-strain, upon which the pathological change depends. To the casual observer this would seem, *a priori*, a very simple matter. But a more careful study of existing conditions from the standpoint of the physiology of vision at once develops a complex problem. It is unnecessary to unfold at any length for the special readers of this journal the nature of this problem. Briefly stated, the complexity is introduced by the requirements for comfortable binocular vision, viz.: an approximately harmonious relation between accommodation and convergence which, theoretically, can obtain only with two emmetropic eyes and a physiological range of accommodation and convergence.

Since both accommodation and convergence are controlled by a common innervation, it is plain that any abnormal requirement for either function must introduce a discordant element into binocular vision. This is introduced in every case of abnormal refraction. In hypermetropia excessive accommodation as compared to convergence is required; while in myopic refraction excessive convergence as compared to the accommodation impulse. Observation, however, has shown that most persons have by experience been able to secure a relative range and region of accommodation and convergence, through which the one or the other can, within certain limits, be used independently, and that beyond these limits, which differ greatly in different individuals, disturbance of function is inevitable. That is to say, the accommodation must be relaxed in the interest of single vision, or convergence abandoned in the interest of a clear image at the macula.

The struggle to maintain binocular clear vision is the cause of the asthenopia and its associated pathological conditions certainly in a large percentage of cases. Many persons are able to maintain this struggle successfully until the gradually diminishing physiological range of accommodation finally reaches a point when it can no longer be maintained without suffering. The age at which this point will be reached will depend principally upon the degree of the existing anomaly. But the disability will often be precipitated by excessive work or by some sudden impairment of the general health. But even under the most favorable conditions the binocular vision habit has been secured through experience in involuntarily controlling the abnormal relation between convergence and accommodation. This life-long experience cannot voluntarily be abandoned. The use of a certain strain upon the accommodation to secure clear vision in hypermetropia, and a definite amount of relaxation of convergence have become a fixed habit. To break up this habit constitutes the difficulty so often experienced in so-called manifest or non-mydriatic corrections, and in inducing hypermetropes to wear approximately full corrections after the influence of the cycloplegic has disappeared. The hypermetrope will accept at most, glasses correcting only a part of the existing error; while the myope will almost invariably demand for clear vision an over-correcting glass. In both cases the result being in the interest of the relative convergence habit.

Many patients who are annoyed by a blurring of the page and weak eyes, especially those with simple hypermetropia are relieved temporarily by manifest corrections; and in a few weeks or months will return and accept a stronger glass, having in the mean time acquired a new relation between convergence and accommodation; but if astigmatism in low degree is also present, or if there are irritative or pathological changes in the fundus, the problem is much more difficult of solution. In many cases either all glasses will be rejected or even concave ones will be chosen. It has been by no means unusual to find patients wearing concave glasses as the result of manifest corrections; when, under a cycloplegic, the existence of hypermetropic astigmatism was demonstrated. A careful study of binocular vision in such cases will usually reveal, not only the above described changes in the fundus, but an esophoria associated with what has been called a cramp of the accommodation. The writer has described this condition elsewhere as a relative esophoria[1].

In all such patients efforts at manifest correction are worse than useless. Repeated attempts will lead to variable results, a different glass being chosen at each sitting; and the irritability of the eyes will be increased by each effort to select a glass. The only method by which any trustworthy analysis of the static refraction of the eye can be made is by the instillation of a strong mydriatic. Moreover, in the class of cases now under discussion the hurry-up methods, by the use of a transient cycloplegic, so much in vogue of late years, are but little, if any, better than attempts at non-mydriatic measurement. It may be contended that where concave glasses are chosen instead of convex, that the hypermetropic astigmatism is usually present in low degree. While this is often true, the conditions are analogous to those instances where, in higher degrees of error a large part of it is rendered stubbornly latent by a fixed cramp in the accommodation and convergence. The vicious habit which has been established can be broken up only by the more or less prolonged employment of a strong mydriatic. Under the sedative or anæsthetic and cycloplegic action of the drug the pupil is dilated, the ciliary muscle placed at rest, the irritability of the eye is soothed and the hyperæmic and turgid, fluffy chorioid rapidly settles back to a condition of health. It then becomes possible by objective and subjective methods to accurately measure the static refraction of the eye. When this point has been secured the headache and other subjective symptoms will also have disappeared and a normal acuity of vision secured with accurate correcting glasses and in some cases the esophoria will give place to a relative exophoria.

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[1] *Vide.* Abnormalities of Ocular Balance—University Medical Magazine for Jan., 1895, by S. D. Risley, M. D.

It will be observed from the foregoing that the mydriatic has been instilled not only for its cycloplegic action, but also for its therapeutic properties, since its anesthetic or calming effect over the nerve supply of the eye is an important factor in relieving the general hyperæmia and the pathological states of the fundus oculi. It is not to be expected that this will be accomplished by repeated instillations of homatropine during a single hour while the patient waits in the consulting room. In the absence of the fundus conditions which have been described, this method will often succeed in securing an approximate or possibly a complete paralysis of the accommodation, but in case of severe and long standing asthenopia associated with a turgid chorioid and absorption changes sufficient time for resolution is as necessary as in analogous pathological conditions in other diseased tissues. While homatropine has been a most valuable addition to our group of mydriatics it has its distinct limits of usefulness and should not displace the stronger cycloplegics in the group of patients under discussion.

Effective appeal might be made to the case-books for a demonstration of this view in the detailed history of many patients, but a single case by way of illustration will suffice.

Mr. B., age 33, was a sufferer from fronto-occipital headache with occasional explosions of sick headache. O. D. V. = C/XII O. S. V = 6/IX. Right hyperphoria = 2°. Esophoria = 5°.

The ophthalmometer revealed an overlapping of the mires of two steps in the vertical meridian in the right eye, and one and a half in the left. He selected corresponding concave cylinders with axes horizontal in each eye which improved his vision, but no glass gave normal acuity. The ophthalmoscope showed fluffy eye-ground, great hyperæmia of the disc and fine granular changes at the macula in both eyes. A solution of sulphate of hyoscyamine was prescribed to be instilled three times a day; the eyes to be protected from light by smoked glasses. The following day the dragging pain in the head was much relieved and he selected O. D. + 1.50c ax. 90° V= 6/VII O. S. +1.00c ax. 90° V = 6/VII. The esophoria remained at 5° but the hyperphoria was doubtful. Abduction 8°. Adduction 16°. The incongruity between the existing esophoria at 6m. and the low adducting power led to a continuance of the mydriatic. On the following day the opthalmometer showed a marked diminution in the overlapping of the mires in both eyes and he selected for O. D. + .50s ⊃ + 75c ax. 90° V=6/VI., for O. S. + .50s ⊃ 50c 90° V = 6/V. The hyperphoria had disappeared and the esophoria had fallen to 2°. The instillations of the mydriatic were continued for twenty-four hours longer when he reported that his headache was gone. He then selected for O. D. + .75s ⊃ + .62c ax. 90° V = 6/V. O. S. + .75s ⊃ + .50c ax. 90° V = 6/V. The ophthalmoscope showed an almost complete disappearance of the hyperæmia of the fundus and the macular changes could be seen only by the most careful study. The esophoria had also disappeared; showing with the maddox rod or red glass a slight exophoria when determined through the carefully centered correcting glasses. Abduction remained at 8° and adduction 16°. It is obvious that in this case the manifest correction, that is to say, the convex cylinders chosen at the first consultation, with or without prisms to correct the hyperphoria or the esophoria would have failed to secure his comfort or the safety of his eyes, which were in peril from the already begun macular disease.

The history of this case has been given in some detail since it illustrates not only the necessity for the use of a mydriatic in a large group of patients suffering from asthenopia, but also the method pursued in its use, and the results obtained in improved fundus conditions as shown by the improved acuity of vision, and by ophthalmoscopic study. It has been claimed that in astigmatism the ophthalmometer has removed the need for the mydriatics, but in this patient it was plainly shown that under the fixed cramp of the converging muscles and the spastic efforts of the lids produced by the undue sensitiveness to light even the corneal radius as shown by this valuable instrument was temporarily changed, a fact of which the writer has seen many examples. In short any method other than the prolonged action of the mydriatic would not have revealed the true static refraction of the eyes.

In the treatment of progressive myopia the employment of the mydriatics is of signal importance, not only for their cycloplegic action, but also for their therapeutic value in relieving the chorioidal conditions. This may be briefly illustrated by the results in a single case, the representative of a numerous group of patients.

Mrs. H., age 55, is chosen, not to illustrate any peculiarity in the well known clinical picture, but because of her age, since there is much hesitation in the minds of some surgeons as to the use of these drugs during and after middle life. She had already been furnished with three sets of correcting glasses during the preceding year; the first by an "oculist-optician," the others by ophthalmologists, one of whom had a few months before used homatropine during a single morning and ordered the glasses she was wearing when seen by the writer at the request of her family physician, who sent her in the hope that her sick headaches, insomnia and general nervous symptoms might be due to ocular conditions.

She was wearing O. D. — 3.50s ○ — .50c ax. 150°. O. S. — 3.50s ○ — .50c ax. 60°. The ophthalmometer revealed the following corneal curvature. O. D. As. = 2. D. ax. .45° (but mires coincide first at 150°). O. S. As. = 1.50 D. ax. 135° (but mires coincide first at 30°). The ophthalmoscope showed myopic astigmatism in each eye, with a large atrophic conus at the temporal side of the nerve, with further chorioidal encroachments toward the macula; the whole fundus was a cinnabar red and fluffy, with pigment clouds and absorption areas. There were also well advanced small atrophies in the macular region in both eyes.

The hyoscyamine solution was prescribed to be used three times daily. The following day she close

O. D. — 3.00s ○ — 1.00c ax. 120° V = 6/XII
O. S. — 2 50s ○ — .50c ax. 60° V = 6/XV.

After eight days use of the mydriatic, together with potass. iodid and bromide internally, she finally reported free from headache, had slept well and then chose, without hesitation, the following glasses:

O. D.— 2 25s ○ — 1.50c ax. 135° V = 6/X.

O. S. — 2.50s $\overset{\frown}{\smile}$ — 1.50c ax. 45°. V = 6/X. These she has worn for six weeks with entire comfort and complete relief from all symptoms. Two weeks later vision had risen to most letters in 6/VII. Her headache and insomnia had disappeared and there was much improvement in the general fundus conditions.

The improvement in the fundus, the relief afforded and the remarkable difference between the manifest corrections she had received and the static error of refraction are all striking illustrations of both the necessity and the therapeutic value of the mydriatics in a patient at 55 years of age. The permanent macular atrophies would doubtless not have occurred had the same methods been pursued at the outset of her severe symptoms when she first sought aid at the hands of the advertising optician.

The limits of this article exclude any considerable discussion of the relative value of the different mydriatics. In patients presenting no fundus changes or morbid anomalies of binocular vision there can be no question but that homatropine and duboisine may be, and often should be employed, since the relatively brief duration of their effect upon the pupil and accommodation cause less annoyance and loss of time. But in groups of patients, examples of which have been given in the two cases recorded, the longer duration of the cycloplegic is an important therapeutic factor, not to mention the greater anæsthetic properties of atropine and hyoscyamine as compared, for example, to duboisine. These questions the writer has discussed at length elsewhere*. The same end, however, may often be reached by the prolonged use of homatropine more frequently instilled, but sufficient time must be allowed for the subsidence of the hyperæmia of the ocular tunics, and in the end it will be found no loss of time has been sustained through the use of the stronger and less transient effects of hyoscyamine or atropine.

Soluble Bougies for Treating the Lachrymal Duct.—Steinitz uses a 1 to 5 per cent. protargol, or a 1 per cent. colloid silver, soluble bougie in the treatment of rebellious cases of suppuration of the lachrymal duct. He has been very much pleased with the result in six cases rapidly cured by this means, as he describes in the *Klin. Monatsblaetter f. Augenheilkunde,* 1900, p. 343.

**Vide.* Trans. Am. Oph. Soc., Vol. III, p. 228, "The Relative Value of the Mydriatics. By S. D. Risley, M. D.,

A FURTHER CONTRIBUTION TO THE STUDY OF THE NEW FORMED OR VICARIOUS FOVEA.

BY A. EDWARD DAVIS, A. M., M. D.

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Quite recently two cases of strabismus have come under my care in the clinic of Drs. Lewis and Van Fleet at the Manhattan Eye and Ear Hospital, which afford additional evidence in favor of the possibility of the formation of a new macula. I place them on record for what they are worth, with the belief that they will prove of interest to the profession as they did to the writer.

Case 1.—B. P., aged 21, in good health, history of squint in the left eye since a child. There has been no treatment in the case.

Present Condition.—Divergent squint, fifteen degrees, constant, true fixation.

The ophthalmometer shows astigmatism with the rule, 0.50 D. axis 90° + 180° — in each eye.

R. V. 20/70 : 20/20 — w — .75D.

L. V. $\frac{8}{200}$: $\frac{20}{70}$ — w. — 6.50D.

Reads Jaeger No. 1 from five to fifteen inches with the right eye. Single binocular vision is absent. The ophthalmoscope reveals a myopia of 1D. right eye, and 7D. left eye, with normal fundi.

On a second test the patient accepted the same glasses exactly as at the first test, and they were ordered for constant wear. She was ordered to follow the other steps in the non-operative treatment of strabismus also. After five months' treatment without improvement in the squint taking place Panas' operation was performed, the external recti muscles being stretched and divided. This was Nov. 19, 1901. Nov. 20 there was a slight convergence. Nov. 23 parallelism of the eyes obtained, but a horizontal homonymous diplopia presented when a red glass was placed in front of the right eye, and required a 32 degree prism, base out, to fuse the images. Nov. 26, although one week had elapsed since the operation the patient still had a horizontal homonymous diplopia which required the same degree prism (32), base out, to correct. The eyes are parallel, but have a tendency to diverge if the patient is not paying strict attention to the test.

The explanation of a homonymous diplopia in this case with the eyes parallel or even with the tendency to diverge can be explained on no other grounds, I think, than by the assumption of a new formed or vicarious fovea.

Case 2.—Rosella M——, aged 10, apparently in robust health, history of squint in the right eye since birth, with slight oscillation of both eyes.

Present Condition.—Convergence of 40 degrees, constant, fixation usually with the left eye, true fixation with the right eye is doubtful, since when the left eye is covered, the right eye rolls about aimlessly before fixing and fixation lasts but for a moment. There is a slight rotary nystagmus present.

The ophthalmometer shows astigmatism with the rule 0.50D, axis 90° + 180° — right eye; 1D, axis 90° + 180° — left eye.

Under atropin:

R. V. 6/200 : 6/200 w + 3D.

L. V. 20/50 : 20/30— w + 3D. ⊃ + 50c, axis 90°

The ophthalmoscope shows Hy. 3D. each eye, and normal fundi. The patient was ordered for constant wear + 3D right eye, and + 2½D. ⊃ + .50c, 90° left eye.

Nov. 7, owing to the very poor vision in the right eye, and to the difficulty of fixation with this eye, also at the earnest request of the patient and her friends, Panas' operation was performed.

Nov. 9 the eyes are parallel, but single binocular vision is not present. By the cover test the eyes turn neither inward nor outward when covered or uncovered alternately; however, the upper part of the vertical meridian in each rotates towards the nose when the eye is uncovered. This peculiarity is very marked. Nov. 26, about three weeks after the operation, the right eye converges 20 degrees, and the following exceptional condition presented itself when making the cover test: When the left eye is covered the right eye turns still further inwards (about 20 degrees) instead of outwards, as it should do in an ordinary case of convergent squint, in order to fix; and when the right eye is covered the left eye turns inward to the extent of about 20 degrees, instead of outward as we would expect in convergent squint. This test was repeated many times, and each time with the same result.

The only explanation I can possibly give of this phenomenon of the eye turning in 20 degrees further by the cover test, when it is already converging 20 degrees, is that the new or vicarious fovea in the right eye is brought into play instead of the true or anatomical fovea. When the eyes are left uncovered the patient fixes objects with the left eye, while the line of light from the object strikes just half way between the old and new macula in the right eye. And when the left eye is suddenly covered with a card the patient converges the right eye 20 degrees further inward, thus bringing the image of the object directly onto the new or vicarious fovea. On the contrary, had the patient diverged the eye, as is the rule in cases of convergent squint with the cover test, and to the extent of 20 degrees in this instance, the image of the object would have been brought onto the true or anatomical fovea. By long disuse, however, the anatomical fovea become weaker in perceptive power than the new fovea, as was shown by the patient favoring the new fovea for fixation purposes. Furthermore, there was greater acuity of vision at the new formed fovea than at the anatomical fovea, shown by actual test.

These cases, taken in connection with others reported, especially the striking case of Dr. James Bordley Jr., in the October number of this journal, demonstrate that, in some cases at least, "This new formed macula has not only the same acuity of vision as the normal macula, but also, like it when stimulated, assists in the most perfect associated ocular movements."

Spontaneous Resorption of a Cataract.—Trousseau.—A woman of 55 was operated on to relieve a severe attack of acute glaucoma. Iridectomy was done at the same sitting on both eyes, which had become affected in turn. A few months later a cataract began to develop in one eye, rendering it completely blind by the end of three months. Soon after this the cataract began to disappear, and in four months there was scarcely a trace of it left. Reuss reported a similar case last year: an elderly patient with glaucoma found that the cataract had been completely re-absorbed. He was able to collect 33 cases of spontaneous resorption of a cataract, and in more than half of them there was some complication—glaucoma in 7. Pathologic and especially glaumatous eyes seem to be peculiarly favored with spontaneous disappearance of the cataract.—*Journal de Med. de Paris,* November 3.

Babinski observed, in two cases of Basedow's disease with exophthalmus, tachycardia, and goitre, a complete cure after the administration of salicylate of sodium, ¾ grm. daily for several months, without interruption.

THE DIFFICULTIES IN THE WAY OF AN ACCURATE AND SATISFACTORY FITTING OF GLASSES IN AMETROPIA.

BY SWAN M. BURNETT, M. D., PH. D.
WASHINGTON, D. C.

There are probably more instruments of precision now in use for the determination of the refractive state of the human eye than are to be found in any other branch of practical medicine or surgery. And yet the cry is still constantly for more certainty and satisfaction, in the treatment of the largest contingent of patients that come to the ophthalmic surgeon for relief. We look back with something of pity, mingled with not a little contempt upon the methods of the oculist of thirty years or more ago, who had nothing but his trial case and a set of test-types. We have accumulated a very extensive armamentarium since then, but it would not perhaps be wide of the truth to say that our difficulties had multiplied, rather than diminished, during these lustrums; and that today there are as many trying refraction cases as in the days when Donders first threw the light of his genius upon the darkened way of the refractionist[1].

There is no doubt more than one cause leading up to this state of affairs. First among them, unquestionably, is the larger number of cases which demand a careful and refined correction of their ametropic condition due to the fact that the profession is becoming more and more aware that certain annoying and serious nervous manifestations are consequent to the eye-strain inherent in an uncorrected optical defect.

Another reason is the inexorable demand on the part of these patients for the utmost nicety of correction; an approximate adjustment of glasses being resented by their highly organized or shattered nervous systems, almost as much as no correction at all. It is the last half or quarter or possibly even less of a dioptre, and the last two or three degrees of axis inclination that counts; and marks, it may be, the boundary between happiness and despair. As all these conditions are to be found in their most advanced and aggravated stages in this country, it might be summed up as "Americanitis."

Another, not unimportant, factor is a feeling for the necessity of the most careful work among American practitioners themselves, and a conscientious realization of what is expected of them as, on the whole, the most thorough and painstaking refractionists in the world today. For it is a fact, now generally admitted, that the Americans demand, and are furnished with, better fitting glasses—optically and otherwise—than our cousins over the sea.

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[1] Perhaps in consonance with the slang (unfortunately American) that has recently found its way into ophthalmic nomenclature, and which misapplies the verb "refract" to the determination of the refraction of the eye, we should designate the officiating personage as the Refractor and the victim as the Refractee.

For the general run of cases—perhaps a majority—a fairly close approximate correction of ametropia usually suffices to give satisfaction. In a not inconsiderable minority, a large amount of the refractive error can and does go uncorrected because the patients do not suffer, and are not willing to submit to the slavery of glasses. In fact, we find that the lower grades of ametropia are those that give us the most trouble. These cases, of the uncomplaining, we of course leave out of consideration in this thesis.

It is that large and constantly increasing minority of sufferers, those to whom the "grass-hopper is a burden," to whom "small things are boistrous there," who live on their nerves and ours, who refuse to have our doors closed upon them until they have found relief, and complete satisfaction in the use of their eyes—it is this class that tests our capacity, ingenuity and endurance to the limit. Fortunate would it be for us if we were dealing with an optical instrument that was even moderately systematic in its construction and arrangement, or was built in accordance with any fixed or definite plan. Our instruments of precision could then be brought into play in accordance with the well established laws of optics, and the results obtained applied with the absolute certainty of Q. E. D.

But the human eye is not an optical instrument constructed on a fixed and uniform plan, even in the so-called normal optical condition. There are as many variations from a conventional standard almost, as there are eyes. Small these differences may be in some instances, but still demonstrable even by our relatively coarse instruments in every-day use. Take any dozen individuals, consecutively, and examine them with the ophthalmometer of Javal, and no two persons will be found (and hardly the two eyes of the same person) whose corneal radii are exactly the same; and the refraction of the cornea will bear no constant relation to the refraction of the eye as a whole. And it is now known from our abundant experience that the astigmatism of the cornea, as measured by that most ingenious instrument, gives us no uniformly trustworthy evidence as to the actual amount from which the eye suffers. It is these fundamental inconstancies of construction, of which this is only one, that bar the way to a reliable application of any one of our objective instruments or methods for the determination of the refractive condition of the eye.

For just these same reasons the shadow-test, which obtains its results from the refraction of the eye as a whole, cannot be relied upon with certainty, notwithstanding the claim of some experts that they can determine the refraction within a quarter of a diopter. In some eyes this may be possible, but from my experience an accuracy in the general run of cases to a half-diopter is something to be thankful for, and there are not a few cases in which the movements of the shadowed area are entrely misleading. This is specially manifest when the eye is under the influence of a mydriatic—the wide pupil opening up all the refractive irregularities the eye is possessed of. This method of examination requires more than any other perfectly clear media for its best results. I first called attention to these shortcomings of the shadow test in a paper published in the Transactions of the American Ophthalmological Society for 1892, on "Some Incidental Phenomena of the Shadow-test," particularly in connection with what I have called the "Internal Shadows."

Nothing, in what I say, should be construed as a disparagement of any of the objective methods at our disposal. Each one gives us most valuable aid, and no case should be considered as thoroughly examined until each has been applied with all the accuracy possible. It is a matter of regret that we do not have more at our command. We must not forget, however, that there is a personal equation on the part of the observer which must always be reckoned with, and which may prove in the ultimate analysis an important factor in our difficulties. Nothing is truer than the apothegm of Hippocrates that "Observation is difficult" when applied to the determination of the refraction of the human eye.

After all, what we are searching for is the glass that shall give the patient the best and most comfortable vision; and this being the case, the court of last appeal must be the trial lenses and the test-types. But even when we have arrived here with all the data the various objective methods of the ophthalmometer, ophthalmoscope and shadow-test have furnished us, our real trials seem, in most cases, to have only begun.

If the "personal equation" is a stumbling-block in the objective methods, it is still a greater one on the part of the patient in the subjective examination. In the first case we can, to a degree, familiarize ourselves with it and take it into account as a more or less fixed quantity; in the latter it is as varying and kaleidoscopic as the number of patients, almost. Here we meet with imbecility of every grade, wilfulness and obstinacy, and an unconscious untruthfulness, to an extent that, to the inexperienced, is quite incredible. The stupidity and mental slowness of fairly intelligent people is nowhere more apparent than before a set of test objects, especially if the vision does not reach the normal standard. They will contradict themselves half a dozen times in as many minutes. The axis of a cylinder will be established, in accordance with their most positive statements, today; and tomorrow they will assert, with equal positiveness, that it is something else; and, like a bad witness on the stand, they will tell either too much or too little.

The habit of acute observation is not a universal one, particularly when new or unusual conditions are faced. This is especially marked in the examination with the Fan of Snellen—one of the most valuable means at our command for determining subjectively the meridians of greatest and least refraction. To a very large number it as foolishness to the Greek: they can make nothing out of it, if at all, until they have been elaborately taught as to what they should observe and the variations that are to be expected in its appearance under certain specified conditions. On account of these shortcomings it is nearly always incumbent upon us to educate our patients how to see, and how to interpret correctly their visual sensations.

All this amounts to saying that, in the estimation of the visual capacity of the human eye, we are not dealing solely with an optical instrument, but also with an organ of sense, in which judgment must give expression to the impression made on the terminal organ. Not many persons are given to making wise discriminations as to their visual impressions, and this is especially marked in the average person with a lowered visual acuteness from imperfect retinal images. In fact, in such cases we often find that the clear retinal image produced by the correcting glass rather tends to confuse them, since it gives a new set of impressions which they must learn to interpret by experience and habit.

Then, again, we have the erratic action of the accommodation to deal with. It is not necessary to decide here whether there can be or not a partial contraction of the ciliary muscle. We know practically that by some process astigmatism is modified in various ways by the accommodation, and that, under the influence of glasses properly fitted, these conditions are changed permanently and with great satisfaction to the patient. We do away with some of these conditions by the employment of a mydriatic which should always be used in such cases, but often, when the effect of the mydriatic has passed away, there is a return to the previous state of refraction, and we are no better off than before, except as to our more nearly accurate knowledge of the static refraction of the eye. The vicious habit refuses to loose its hold. It must be attacked from another side. Besides, the mydriatic interposes errors and difficulties of its own. In the first place, an eye with its ciliary muscle in a state of paralysis is not in a normal condition. The most a mydriatic can do is to release some excess of ciliary spasm, if it has existed, and eliminate any irregularity in the action of accommodation; but, in doing this, it opens up all the irregular refraction which lies outside of the visual zone hitherto covered by the iris. How great these irregularities, in the cornea especially, are, I have endeavored to show in a paper published in the Transactions of the American Ophthalmological Society for 1892, entitled, "An Analysis of the Refraction of 576 Healthy Human Corneæ Examined with the Ophthalmometer of Javal and Schiotz." Jackson has estimated how much they are for the eye, as a whole, by means of the shadow-test. The difference between the refraction at the nasal and temporal sides of the cornea I have found, in some instances, amounted to 3 or 4 D. How results approaching anything near accuracy can be obtained through an aperture with such extreme asymmetry of curve is one of the marvels of physiological optics. It would seem that, in some cases, a choice is made of the images formed by some particular portion of the refracting media, by some adapting power of the visual apparatus. This is most marked in certain cases of kerato-conus, where plus lenses are found more satisfactory than minus lenses—the images formed by the sloping sides of the cone being preferred to those formed by the highly refracting apex. As a result of this, the examination under a mydriatic cannot be depended upon with certainty, and for the final testing we must wait until the effect of the mydriatic has passed away and the pupil has regained its normal size.

I am aware that we can sometimes succeed in forcing an eye to take a glass indicated under a full paralysis of the accommodation which it at first refuses. This "forcing," however, we shall find is only a process of education by which the eye gradually accustoms itself to new conditions, its former abnormality having become, through long habit, a normal state from which it takes time to absolve itself.

There is nothing, then, left but a patient and painstaking work with the trial case, having in mind always an ideal refractive condition, based upon the knowledge obtained by all the objective methods of examination, to which we should endeavor to attain through the sense of the patient. In this final determination time is a most important factor. There must be no feeling of hurry, either on the part of the patient or surgeon. A crowded waiting room is inimical to the best refraction work. To try to finish a case of even ordinary refraction, or what appears to be such, at one sitting, is to attempt the impossible. A number of seances are often required, and, even then, it may be necessary to order glasses for trial or experimentation in order to get important information, which can be obtained in no other way.

Of the various means that have been devised by practical ophthalmologists for assisting in these final examinations, it is not my province to speak in this general survey. All are useful, and it is to be regretted that we do not have others. The demand for this work is for tact in handling people, quickness in seizing suggestions, and, above all, infinite forbearance and untiring patience on the part of the examiner. He will be most successful with his refraction cases who possesses these qualities in the supremest degree.

Dr. Edw. Jackson says, in speaking of the cataract extraction, as one of the contra-indications to the simple extraction, "Special prominence of the eyeball and the habit on the part of the patient of nipping the eye-lids together, in such cases there is great danger of prolapse."

Hartridge recommends protargol as the best all-around silver preparation in use. It contains 8.3 per cent. of silver, and a 10 per cent. solution of protargol is equal to a 2 per cent. solution of nitrate of silver. It has great germicidal properties.

THE CENTERING AND DECENTERING OF LENSES BEFORE THE EYE.

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Illustrated.

Any limited portion of a lens, except the exact optical center, has a prismatic as well as a lens action. We can regard it as a thin lens or pair of lenses combined with a prism. Thus, a plano-convex lens is really a thin convex combined with a prism. A bi-convex lens is made up of two thin plano-convex lenses combined with a prism. The meniscus convex consists of a plano-convex and a weaker plano-concave lens combined with a prism.

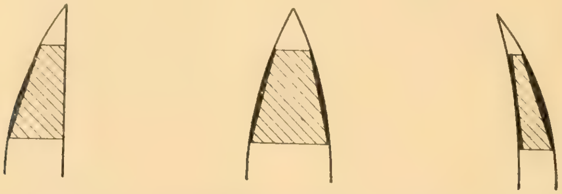

FIG. 1. Illustrating the prismatic action of any limited portion of a lens. The part that acts as a lens is represented in black. The accompanying prism by the lined portion.

The part of the lens through which rays enter the pupil at any one time is always quite small. It approximates the size of the pupil. For a given distance of the object it is a little larger for a convex lens, a little smaller for a concave lens. Thus, one who uses spectacles is almost constantly using a prism combined with his lens; a prism with the base toward the optical center if the lens be convex, and the apex toward the optical center if the lens be concave.

When prisms before the two eyes are of the same strength and turn in the same direction, binocular vision is not disturbed by them. Hence, with lenses of equal strength, properly placed before the eyes, the result of the prismatic action is simply that the eyes have to be turned a little farther in any given direction if the lens be convex; and not quite so far, as would otherwise be necessary, if the lens be concave. If the lenses be of unequal strength, the prismatic effects for which the two eyes have to adjust themselves will be unequal, and the inequality will increase with the deviations of the lines of sight from the optical centers of the lenses.

It is this inequality of prismatic effect, upon looking through any portions of the two lenses but their optical centers, that limits the use of lenses of different powers for the correction of anisometropia. It also makes it important when lenses of different strengths are to be used before the two eyes to so place them that the lines of sight will habitually pass through the optical centers.

DECENTERING.

By changes in the relations of the optical centers to the lines of sight, that is—by decentering the lenses—the most varied prismatic effects can be produced. This is of great practical importance. In the first place, no exact assumption of the effect of a prism combined with a lens can be made, nor can this effect be definitely indicated without taking account of the position of the optical center of the lens.

In the ordinary prescription of prisms combined with lenses, the implied assumption is that the optical center of the lens will be so placed as to give the designated prismatic effect at the geometrical center of the lens; or, more strictly, at the point where the line of sight will pierce the lens when the eyes are in the working position. With any sphero-prism there is but one point at which the required prismatic effect will be produced and when such a glass is prescribed, it is upon the assumption that it will be so placed before the eye as to bring this point to the proper position. Since it is thus necessary, in securing any definite prismatic effect in combination with a lens, to take cognizance of the position of the optical center of the lens, it is most rational to prescribe prismatic effects, so far as may be practicable, by designating the extent and direction to which the lens is to be decentered.

This will be whenever the needed prismatic effect can be secured by a displacement of the optical center within the ordinary limits of a spectacle glass—whenever the decentering required is less than 18 or 20 mm. in the horizontal or 12 to 15 in the vertical direction. Within these limits it is possible to secure the great majority of prismatic effects, that it is practicable to employ, except when the lens required is comparatively weak.

Trial prisms in the test cases have been found to vary greatly in strength. Different systems of numbering may lead to confusion between the prescriber and the maker of lenses. But a certain amount of decentering is a perfectly fixed and definite thing, about which there can be no contest. Hence to prescribe decentering instead of a certain strength of prism will avoid chances of disagreement between the ophthalmic surgeon and the optician.

DECENTERING OF SPHERICAL LENSES.

For spherical lenses the effect of decentering is the same in all directions; and is directly proportionate to the strength of the lens and the distance to which it is decentered. Since the numbering of prisms by degrees of refracting angle (the old system), and the numbering of lenses by dioptres have no direct and simple relation with each other, the desired prismatic effects, according to that system of numbering, can be obtained in millimeters of decentering only by some calculation. It is, therefore, convenient to have calculated once for all a table showing the amount of decentering that will be required to produce each prismatic effect, and to refer to this table. Rather than to repeat the necessary calculations every time a sphero-prism is to be prescribed.

The following table will serve for the prisms commonly employed:

TABLE I.

DECENTERING OF LENSES TO OBTAIN PRISMATIC EFFECTS.

Lens.	1° Prism.	2° Prism.	3° Prism.	4° Prism.	5° Prism.
1D.	9.4 mm.	18.8 mm.	28.3 mm.	37.7 mm.	47.2 mm.
2D.	4.7	9.8	14.1	18.8	23.6
3D.	3.1	6.3	9.4	12.6	15.7
4D.	2.3	4.7	7.1	9.4	11.8
5D.	1.9	3.8	5.7	7.5	9.4
6D.	1.6	3.1	4.7	6.3	7.9

If one has prisms numbered by the new unit, the centrad (or its equivalent for prisms commonly employed, the prism dioptre), the relation between the prismatic effect and the decentering becomes so simple that no table for reference is required. The 1 centrad prism is one which produces a deviation equal to 1-100 of radius. That is, at a distance of one metre it produces a deviation of 1 cm. or 10 mm. The 1 D lens has a focal distance of one metre, hence decentering such a lens, 10 mm. gives one centrad of prismatic effect.

To find the amount of decentering required to produce the same effect with another lens it is necessary to divide 10 mm. by the diopters of lens-strength. Thus a 4 D. lens to produce 1 centrad of prismatic effect must be decentered 10 divided by 4 = 2.5 mm. If a greater prismatic effect is to be produced, we must multiply by the number of centrads required. The general rule would be *ten millimeters multiplied by the number of centrads of prismatic effect desired, and divided by the dioptres of strength of the lens, gives the millimeters of decentering necessary to produce the desired prismatic effect.*

To combine 3 centrads of prismatic effect with a 5D lens, we have $\frac{10\times3}{5} = 6$mm.

When one has become accustomed to them, calculations of this kind will be more easily and quickly made than a reference to a table. The close correspondence between the old system of numbering prisms and the new is illustrated by comparing the 6 mm. thus obtained with the 5.7 mm. shown in the foregoing table as the decentering required to produce the effect of a 3° prism.

In the great majority of cases a lens is to be decentered in but one direction, as for the production of a prismatic effect with the base toward the nose, by decentering a convex lens "in" or concave lens "out." Sometimes, however, it is desired to have both a horizontal and a vertical prismatic effect. This is very readily obtained by making the decentering in both directions. Usually a sufficient vertical effect will be secured by decentering one lens in that direction, while the needed horizontal prismatic effect, which is commonly much greater, may be divided between the two lenses.

It is convenient to determine the direction of required decentering by remembering that the center of the lens is the base of the prism for a convex lens. Such a lens should be removed or decentered in the direction that the base of the prism is desired. For a concave lens the decentering must be in just the opposite direction. Thus, to give relief to the internal recti muscles in a case of presbyopia with impaired vision that compelled the patient to read at a comparatively near point, the base of the prism must be placed toward the nose, that is, the center of the convex lens must be removed "in." On the other hand, to give relief to the internal recti in a case of myopia with exophoria, the concave lens must be decentered just the opposite direction, "out."

DECENTERING OF CYLINDRICAL LENSES.

A simple cylindrical lens can, in effect, only be decentered in a direction perpendicular to its axis. When the direction of decentering is at right angles to the axis of the cylinder, the prismatic effect produced is the same as for a spherical lens of equal strength. When the decentering is in the direction of the axis of the cylinder, no effect is produced, or, strictly speaking, no decentering is possible in this direction, because the axis of the cylinder is its optical center, equally throughout its whole length.

When the attempt is made to decenter a simple cylindrical lens in a direction oblique to its axis, the effect is exactly the same as if the lens were decentered to a lesser distance perpendicularly to the axis. Thus in Fig. 2, suppose *AA* to represent the axis of a convex cylindrical lens that it has been attempted to decenter horizontally "in" from *C*, where the line of sight will pierce the lens, to *D*. The effect really produced will be the same as if it had been decentered from *C* to *E*, *CE* being perpendicular to *AA*. The prismatic effect thus prduced at *C* will be in the direction *CE*, as though by a prism with its base at *E*, the thickest part of the lens. In this direction the effect will be equal to that produced by decentering a convex spherical lens of the same strength from *C* to *E*.

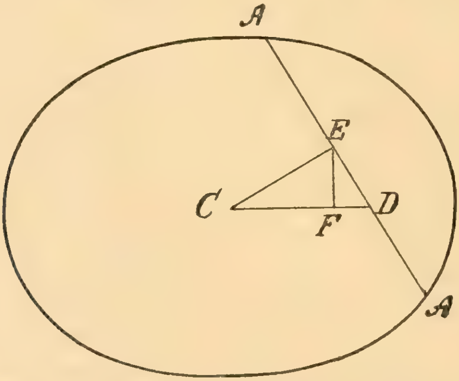

FIG. 2. Showing the desired and undesired prismatic actions of an oblique cylindrical lens when decentered.

This prismatic effect represented by *CE* may be resolved into two parts—one horizontal, in the direction desired, which will be represented by *CF*, and a vertical prismatic effect (base up) represented by *EF*. The sides of the triangle *CEF* then represent the relations of the real effect of decentering, and the horizontal and vertical effects to which it is equivalent.

But the angle *CEF* is equal to the angle *CDE*, which the direction of the desired decentering makes with the axis of the cylinder, because their respective sides are mutually perpendicular.

Taking CE as radius, we have its relations to CF and EF as those of 1 to the sine and cosine of the angle CEF, the angle the direction of the desired prismatic effect makes with the direction of the axis of the cylinder. The desired prismatic effect will equal CE multiplied by the sine of this angle.

The relation of the effective decentering CE to the supposed horizontal decentering CD will be that of 1 to the secant of the angle ECD; or (since ECD is the complement of CDE) the relation of 1 to the cosecant of CDE, the angle the supposed direction of decentering makes with the axis of the cylinder.

Let us call the angle, which the axis of the cylinder makes with the direction CD of decentering, angle a. Then to find the relation of the distance of decentering CD, to the desired horizontal effect, CF, we have:

$CD : CE :: \text{cosec. } a : 1$

$CE = CD$ divided by cosec. a

But cosec. $a = 1$ divided by sin. a

Hence, $CE = CD. \text{ sin. } a$

And $CF = CE. \text{ sin. } a$

$= CD. \text{ sin}^2. \, a$

The desired effect produced by decentering an oblique simple cylinder is equal to the effect produced by the same decentering of a spherical lens, multiplied by the square of the sine of the angle, which the direction of the decentering makes with the cylinder axis.

Then the undesired effect, $EF = CE. \text{ cos. } a.$

$= CD. \text{ sin. } a \times \text{cos. } a.$

The undesired effect produced by decentering an oblique simple cylinder is equal to the effect produced by the same decentering of a spherical lens of equal strength, multiplied by the product of the sine and cosine of the angle, which the direction of decentering makes with the cylindrical axis.

To ascertain the distance it would be necessary to decenter an oblique cylinder to produce a certain desired prismatic effect, one must divide the distance it would be necessary to decenter an equally strong spherical lens, by the square of the sine of the angle between the direction of the decentering and the cylinder axis. In this way the following table is obtained:

TABLE II.

Amount of horizontal decentering required to produce 1 centrad of prismatic effect (base "in" or "out") with oblique cylinders:

Axis of	Millimeters for cylinders of:					
cylinder.	1 D.	2 D.	3 D.	4 D.	5 D.	6 D.
5° or 175°	1320.	660.	440.	330.	264.	220.
10° or 170°	330.	165.	110.	82.5	66.	55.
15° or 165°	150.	75.	50.	37.5	30.	25.
20° or 160°	85.5	42.7	28.5	21.4	17.1	14.2
25° or 155°	55.8	27.9	18.6	13.9	11.2	9.3
30° or 150°	40.	20.	13.3	10.	8.	6.7
35° or 145°	30.4	15.2	10.1	7.6	6.1	5.1
40° or 140°	24.2	12.1	8.1	6.	4.8	4.
45° or 135°	20.	10.	6.7	5.	4.	3.3
50° or 130°	17.	8.5	5.6	4.2	3.4	2.8
55° or 125°	14.9	7.5	5.	3.7	3.	2.5
60° or 120°	13.3	6.7	4.4	3.3	2.7	2.2
65° or 115°	12.2	6.1	4.1	3.	2.4	2.
70° or 110°	11.3	5.7	3.8	2.8	2.3	1.9
75° or 105°	10.7	5.4	3.6	2.7	2.1	1.8
80° or 100°	10.3	5.2	3.4	2.6	2.1	1.7
85° or 95°	10.1	5.1	3.4	2.5	2.	1.7
90°	10.	5.	3.3	2.5	2.	1.7

But for each centrad of desired prismatic effect thus produced, there is also produced a certain amount of undesired vertical prismatic effect. The relation of the undesired to the desired effect is found by dividing the square of the sine of the angle by the product of the sine and cosine; or, what is the same thing, dividing the sine by the cosine. In this way the following table has been obtained:

TABLE III.

Amount of undesired vertical prismatic effect that would attend the production of a horizontal effect by horizontal decentering of oblique cylinders. The first column gives the direction of the cylinder axis; the heads of the other columns give in centrads the *desired* effects, and the balance of these columns the *undesired* effects that necessarily accompany them:

Axis of cylinder.	1 Cent.	2 Cent.	3 Cent.	4 Cent.	5 Cent.
5 or 175	11.5	23.	34.5	46.	57.5
10 or 170	5.7	11.4	17.1	22.8	28.5
15 or 165	3.7	7.4	11.2	14.9	18.6
20 or 160	2.7	5.5	8.2	11.	13.7
25 or 155	2.1	4.3	6.4	8.6	10.7

Axis of cylinder.	1 Cent.	2 Cent.	3 Cent.	4 Cent.	5 Cent.
30 or 150	1.7	3.5	5.2	6.9	8.6
35 or 145	1.4	2.8	4.3	5.7	7.1
40 or 140	1.2	2.4	3.6	4.8	6.
45 or 135	1.	2.	3.	4.	5.
50 or 130	.8	1.7	2.5	3.4	4.2
55 or 125	.7	1.4	2.1	2.8	3.5
60 or 120	.6	1.1	1.7	2.3	2.8
65 or 115	.5	.9	1.4	1.9	2.3
70 or 110	.4	.7	1.1	1.5	1.8
75 or 105	.3	.5	.8	1.1	1.3
80 or 100	.2	.4	.5	.7	.9
85 or 95	.09	.17	.26	.35	.44
90 degrees	0.00	0.00	0.00	0.00	0.00

Examination of Table III. will show that when the angle between the direction of decentering and the axis of the cylinder is 45°, the undesired effect just equals that desired. When the angle is less than 45, the undesired effect is the greater. When the angle is greater than 45, the undesired effect is the less, and it diminishes as the angle increases, until, at 90, no undesired effect is produced.

SPHERO-CYLINDRICAL LENSES.

When the decentering is in the direction of the cylinder axis the cylindrical portion of the lens is to be disregarded, because, in this direction, the combination will act as a plano-spherical lens. When the decentering is at right angles to the cylinder axis, the cylindrical strength may be added to the spherical, and the whole treated as a spherical lens. The same may also generally be done when the direction of decentering is nearly perpendicular to the cylinder axis, when the angle is over 70° or so. The error in thus doing will be so slight, even for strong lenses, as to be of no practical importance.

When, however, the spherical lens has a decidedly oblique axis, it is best to choose first, approximately, the decentering required, and then to consider carefully what will be the effect of such decentering upon the action of the cylindrical lens. If this produces a prismatic effect perpendicular to the one desired, and amounting to one-half centrad or more, this effect is to be neutralized by a sufficient decentering at right angles to that originally proposed. For instance, take R. + 4 sph. $\bigcirc$ + 4 cy. ax. 60°, which it is desired to obtain a prismatic effect of two centrads, base "in." For purposes of practical approximation we may consider the decentering of a cylindrical lens in this direction to have seven-eighths of the effect (see Table II.) of the decentering of a spherical lens of like strength; or to be equivalent to the decentering of a spherical of seven-eighths its strength. The decentering of the above combination then will have the effect of decentering a $4 + 3.5 = 7.5$ D. sph. lens. By the formula for spherical lenses we have $\frac{10 \times 2}{7 \cdot 5} = 2\frac{2}{3}$ mm. Now a decentering of a + 4. D. cylindrical lens axis 60° $2\frac{2}{3}$ mm., "in" will produce the vertical effect of a prism of about 0.5 centrad, base down. To neutralize this would require a decentering of the sph. lens, or the combination, upward, of approximately 1 mm.

The above example illustrates the complexity of the problems raised by combining prismatic effects with oblique cylinders. It also illustrates how strong these cylinders must be before the undesired effect of decentering becomes sufficiently great to be of practical importance; and, therefore, in what a small proportion of cases such complex problems have to be dealt with. For the great mass of cases the strength of the cylindrical is so much less than that of the spherical lens combined with it, or the axis is so nearly vertical or horizontal, or the cylindrical lenses required by the two eyes are so nearly equal in strength and so nearly symmetrically placed, that the problem to be solved is practically the same as for the production of the required prismatic effect by the decentering of a spherical lens.

The above discussion will indicate the limits within which such simplicity may be assumed, or beyond which it is not safe to attempt the decentering of oblique cylinders, or the combination with them of prismatic effects, without a pretty good mastery of the mathematical problems raised by such decentering.

Trousseau believes that most of the so-called idiopathic œdemas of the lids are due to rheumatism or gout, although the general disease may not be manifest. He supports his views with the citation of observations by others and himself.

Thilliez thinks very highly of the use of the suprarenal capsule. He recommends it particularly in severe conjunctival injection, keratitis, iritis and glaucoma.

CLIMATE OR SPECTACLES?

GEO. S. HULL, M. D., SC. D.
PASADENA, CAL.

Among the many invalids who seek relief from our Southern California climate there are not a few nervous wrecks who find but little help until, by some stroke of good fortune, they fall into the hands of an oculist; and when he has acted his part—which is often the whole performance—the climate has an easy time in finishing the cure, for which it generally gets the biggest share of the credit. Verily, a pair of spectacles often does what our "balmy air" and "eternal sunshine" fail to accomplish. Indeed, the constant glare is what most frequently compels the invalid to seek aid from the oculist. He—more often she—comes, saying, "I didn't have any trouble with my eyes in the East, but here I can't stand the glare; it makes my head ache." Undoubtedly in the cloudy, rainy, green East she was annoyed but little by glare, and what headaches she occasionally had were attributed to her stomach, and the indigestion to an inherited weakness of that organ. It is surprising how many neurasthenics come across the continent in search of health who have uncorrected errors of refraction which are the largest factors in their breakdowns. The writer would like to suggest to every physician who advises patients to come out and try our climate, to ask them first whether they have had their eyes examined by a competent oculist—some would not come; they would find a pair of spectacles cheaper.

The following cases will speak for themselves. Many of a similar kind appear upon the case books of Southern California oculists, which would not be there had these individuals been directed to an oculist before leaving the East.

Miss B., age 28, finds that the climate does not help her "stomach and head trouble." When she walks or drives "the glare of the sun" makes her head ache more than in the East, and her "appetite is not as good." She has to wear dark glasses when out of doors, and even they do not afford her relief. She really feels better staying in doors, and that she can do East as well as here. She was told that if she would live out of doors in this genial climate she would get well and strong—she is disappointed and sour. She comes for some eye wash to relieve the itching and slight irritation of the lids. There is "nothing the matter" with her eyes; she "sees perfectly";

her optician told her so. [In some cases an oculist commits the same blunder on too hasty an examination.] Her vision with right eye is $\frac{6}{6}$, with left $\frac{6}{6}$. There is a small amount of esophoria. The ophthalmoscope indicates a low degree of hyperopic astigmatism Homatropin is used, and a quarter of a diopter of hyperopic astigmatism with unsymmetric axes noted in both eyes. Atropia is then prescribed as the accommodation seems not fully suspended, and also as it is thought best to hold it at rest for some time. The following is found and prescribed for constant use:

O. D. + .37 D. Cyl. Ax. 45°; O. S. + .37 D. Cyl. Ax. 135°. After this she faces the light with ease and lives out of doors. The climate agrees with her perfectly, and after a winter's round of pleasure she goes home to surprise her friends with her wonderful recovery—wrought by climate, or spectacles, which?

Case II. Mrs. M., age 35. She states that "everything has been done that could be done East," and that she has been sent here to "try the climate as a last resort." Being advised to keep out of doors and commune with nature, she decided to study ornithology, so than she can enjoy living out with the birds. She purchased a text book, but found on reading it that her eyes tired, just as they had always done in the East. She was advised to try to get a pair of reading glasses, and came for that purpose only. She told me that her disease was "spinal exhaustion," and it was at first thought to be caused by uterine disease, but operation on the cervix and perineum failed to relieve her. Then she had direct treatment to the spine by blistering, and, eventually, by the actual cautery. All this was followed by the rest cure, and then she was fitted with a leathern jacket, which she was wearing now. Her physicians were confident that her disease was not organic, and there was no curvature nor any disease of the bones. Her main symptoms were "general exhaustion," preventing her from walking much or taking any other gentle exercise; pains in the back of head and neck, with occasional dizziness, "weak stomach," "insomnia," "depression of spirits," etc. When traveling or in crowds, general headache was an added symptom.

Vision of right eye, $\frac{6}{7}$; left, $\frac{6}{7}$. Under homatropin:

Right, $\frac{6}{35}$ + 1.50 D. $\supset$ + .37 D. Cyl. Ax. 90° V. = $\frac{6}{6}$.

Left, $\frac{6}{35}$. + 1.50 D. $\supset$ + .37 D. Cyl. Ax. 90° V. = $\frac{6}{6}$.

On account of considerable exophoria the spherical correction was cut down in prescribing and the following given: O. D. + .75 D.

⊃ + .37 D. Cyl. Ax. 90° O. S. ditto. She was placed on Gould's exercise for her weak interni.

As she had taken pains to make me understand, before the examination, that she had come only for reading glasses, and wouldn't "on any account" wear glasses all the time, I was in quite a dilemma. If I even hinted that her "spinal exhaustion," etc., might be due to a defect in her eyes, I feared that she would become indignant, and even refuse to wear the reading glasses. I could well imagine her hooting at the idea that an oculist would attempt to do with a pair of spectacles what her physicians East had failed to accomplish with all of their resources. After testing the lenses and seeing that the frame was properly adjusted, I quietly, yet firmly, told her that she must promise me to wear her spectacles constantly for one month, so that her eyes could get rested; and also that she must come to me at set times for assistance in exercising her converging muscles. I promised her that at the end of the month she could wear them only for reading, if she wanted to; I felt confident that one month's trial would convince her that the correction of her ametropia was the one untried remedy which was going to afford relief to her "spinal exhaustion." After wearing her glasses faithfully for two weeks, she asked me if I thought they had anything to do with lessening her headaches and spinal trouble, as she surely felt much better. I told her to wear them two weeks longer and then I would answer her question. At the end of the month she was walking miles at a time, eating and sleeping well and entirely free from her "spinal exhaustion." Then, instead of repeating her question, she made the statement that she was positive that the glasses had been the means of her relief, because if she left them off for a time her old symptoms began to return. I didn't have to persuade her to keep them on. When her husband came to take her home she had gained so much in weight and altered so favorably in appearance that he scarcely recognized her.

I shall mention another and more common class of invalids who profit frequently by our climate, whose recovery would be hastened in many instances—certainly whose comfort and pleasure would be increased—by properly fitted spectacles. I mean the consumptives. Fighting against fearful odds, it should be our earnest endeavor to do all we can to lessen the tax on their nervous systems. Think of a victim of tuberculosis coaxing a weak stomach with the most carefully selected foods, and at the same time carrying an uncorrected compound hyperopic astigmatism with gastric reflexes! How often I have heard consumptives complain that the edge was taken off their pleasures by a persistent dull headache; that reading was a punishment instead of a pleasure, and that even the scenery tired their heads and increased their nervous irritability.

Just how much truth there is in the claims of some that consumption is largely a nervous disease it is not our purpose to discuss, but certain it is that nervous irritability increases its symptoms, especially that prominent one, cough.

In concluding this necessarily short paper, let me ask whether it would not be well to examine the eyes of every patient fighting consumption—and kindred exhausting diseases—with the view to correcting any error of refraction, or heterophoria, which could cause reflex trouble?

I could report many cases in which the battle was waged much more vigorously by patients after their errors of refraction had been corrected—this opens an important subject, it seems to me, for the general practitioner to consider.

THE PRACTICAL VALUE OF THE PERFORATED DISC IN SUBJECTIVE TESTING OF THE REFRACTION.

BY F. B. EATON, M. D.,
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Illustrated.

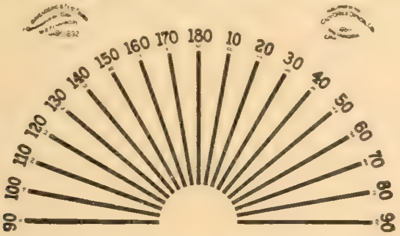
Probably no ophthalmologist would question the pre-eminence, for refractive purposes, of a drug which, while suspending the accommodation, would leave the pupil unaffected. The great advantage of such an agent becomes still more apparent when we consider that in most eyes there is generally present that optical defect in the crystalline lens termed positive spherical aberration, which causes the rays passing through its periphery to cross nearer it than those passing through near its center.

The object to be attained in testing the refraction is an accurate determination of the refraction in this latter portion, the region of the center of the lens, which Edward Jackson calls the "visual zone."

The writer prefers instead the term *dioptric path.* It appears to him more accurate, inasmuch as we are chiefly concerned with the path of the rays through the dioptric media of the eye, *i. e.,* the cornea, aqueous humor, lens and vitreous, and as determined by the size and position of the pupil.

It is clear that the care we take in skiascopy to determine the refractive condition in this path, and to exclude the disturbing phenomena due to spherical aberration, should, theoretically, be taken also during subjective tests. Now, practically, this is impossible unless we place a "stop" before the pupil when the latter is widely dilated by a cycloplegic, and it would seem to be only a matter of course to do so. Nevertheless, on inquiry among some of his confreres, the writer has not found that one of them employ any such device, though uniformly employed by him for years. Neither has he seen, that he can remember, any reference to it in text books or medical literature. These facts have led him to suppose that his experiences may be of interest.

The natural *ideal* stop would be a very thin disc placed at the posterior surface of the cornea, and having a circular perforation the size of the patient's pupil when under average illumination. An approximate "stop" would be this same disc placed as near the anterior surface of the cornea as possible. Unfortunately trial cases commonly in use seldom contain any such disc. One reason for this is that its proper adjustment is difficult when it is worn in a trial frame, for then a slight displacement of the latter will displace the aperture so that its edge will wholly or partially obstruct the line of sight, and thus give rise to errors, especially in the determination of astigmatism. This displacement is difficult to avoid, owing to the movements imparted by the hand of the surgeon when changing the lenses. The trial frame is quite suitable when once adjusted and unmoved. But, for the proper use of the disc, and optometer of the type devised by Risley, Oliver and others, swung from a standard attached to the patient's chair, or near by, is all but necessary, since it is provided with a forehead rest and can be readily adjusted for height, leveled, etc.



To illustrate the value of the disc, an example of the method of subjective testing employed for years by the writer, which has served him well, may be of interest. Let us suppose the eye to be fully under a cycloplegic, and its refraction as determined by skiascopy to be + 1.25s ○ =0.50 cyl., axis 15°.

With the patient and optometer 20 feet from the test cards, a + 1.50s is placed before the eye, the other being covered. With this, the dilated pupil being "stopped" with a disc having an aperture 4 mm. in diameter, if + 1.25 D. represents correctly the refraction of the meridian of least refraction (15 degrees), the letters will appear slightly hazed. If they are not, we try + 1.75s or stronger lenses, the object, of course, being to be certain that the meridian of least refraction be approximated.

We then replace the letters by a half-wheel or radiating lines 10 degrees apart, each line 3 mm. wide. The chart preferred by the writer (see cut) is that devised by Mr. W. D. Fennimore, of the California Optical Co. It differs from the ordinary chart only in the extra numbering, each line having above its real number in degrees the number of the line at right angles to it. This extra number indicates the axis of the correcting *minus* cylinder.

Returning to our patient. Through the 4 mm. provisional pupil all the lines appear fogged by the + 1.50 or + 1.75 sphero, but a patient with ordinary intelligence will say that four of them, the vertical line and three to the (patient's) right of it appear considerably *less fogged* than the rest. These are marked on the chart 180, 10, 20 and 30, and their images are formed on the retina by the rays passing through the correspondingly numbered meridians of the cornea.

The middle of this group of lines is 15 (half way between the vertical and 30), and is formed on the retina by rays passing through the meridian 15° of the cornea, which we have thus ascertained to be the meridian of least refraction.

If we now remove the perforated disc, this difference in the lines become much less apparent, and if there is irregular astigmatism, caused, as is so frequently the case, by asymmetry of the cornea well outside the boundary of the dioptric path (visual zone), the patient may not only be unable to designate the limits of the clear group of lines, but may mislead the oculist by his uncertain answers. The difficulty increases in proportion as the astigmatism is slight, since when this is but 0. 25 D. the number of the clear lines is generally six or more, and the disc "stop" is correspondingly helpful.

Having now determined the meridian of least refraction, the chart is replaced by the familiar astigmatic "clock face" with triple lines, and so turned that 12 to 6 lines are coincident with the meridian 105° of the cornea (15 on the first chart).

Weak plus and minus sphero lenses are next placed in front of the +1.50s or +1.75s until the 12 to 6 lines are at their sharpest, and the +1.25s thus found placed in the rearmost clip of the optometer. Minus cylinders are next placed in front of the aperture with their axes at 15° until the patient sees the three lines in the 3 to 9 as distinctly as he does those of the 12 to 6; all the lines are then clear.

A disc with a smaller central aperture, one equal in size to the patient's pupil under average illumination (one 2½ mm. in diameter is a good average), is now substituted for the larger one, and the patient asked to read the smallest test-type he can, which, with normal acuteness of vision is generally 20/xv, and the refraction is now corrected.

Throughout the testing the patient is to be cautioned not to allow the line of vision to cross the edge of the aperture, since this will vitiate the result.

The astigmatic dials of Dr. Verhoeff* are of great value, as finishing tests, but the above described method of ascertaining the principal meridians within 5 degrees has best served the writer, and in his hands has been rapid and accurate.

The method also serves to detect and correct that form of irregular astigmatism correctible by two cylindrical lenses with axes less than 90° apart.

Others may have used this method of testing; if so, the writer has seen no description of it, and, be this as it may, he is convinced that errors are very often made by careful oculists when testing, because they are correcting, not the refractive value in the dioptric path, but that of the periphery of the pupil when there is considerable spherical aberration. The old saw might be paraphrased to read: A weak cycloplegic is a dangerous thing, for then the disadvantage of the dilated pupil more than offsets the partial suspension of accommodation.

590 Sutter St.

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*Ophthalmic Record, Sept., 1899.

A NEW ENUCLEATION FORCEPS.

BY GEORGE F. SUKER, M. D.,
CHICAGO, ILL.

Professor of Clinical Ophthalmology in Post Graduate Medical School; Clinical Instructor in Ophthalmology, College of Physicians and Surgeons, University of Illinois.

Illustrated.

This forceps is intended to fill a long felt want in the ophthalmic armamentarium.

Heretofore when an operator wished to preserve an eye for pathological sections or examination, he experienced more or less difficulty in removing the globe without rupture. The more so is it true when the globe is staphylomatous or the cornea threatened with perforation or rupture. The reason for this is that with the ordinary enucleation forceps only the anterior section of globe is grasped, and the amount of pressure exerted is very uneven and rupture likely to occur. At no time can any amount of traction be exerted in extensively diseased globes with the ordinary forceps, a point often to be desired. Again, the usual enucleation forceps does not act as a guide or guard in the operation, a point also to be desired at times.

The removal of a collapsed globe is by no means a pleasant task.

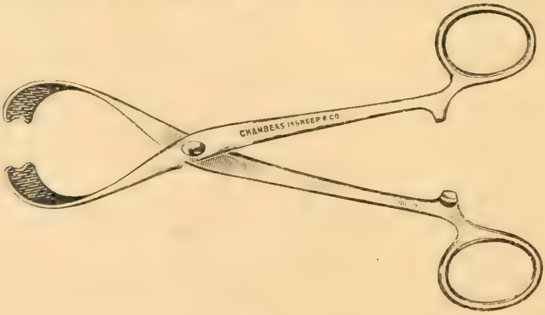

FIG. 1.

This forceps is modeled after the usual obstetrical forceps and is applied in a similar manner; i. e., first one blade and then the other.

After having cut the conjunctiva, severed the muscles and opened the tenon capsule, as is usual in an enucleation operation, insert the pivot blade well into the capsule cavity, following the curve of the globe, and holding it parallel to the long axis of the globe; next pass the blade with the slot in a similar manner on the opposite side of globe and lock the blades as on ordinary catch forceps. The globe is now securely held in between the blades, and the optic nerve very likely extends through the notch in the blades. You can now exert considerable traction without fear of rupturing the globe. Use the usual curved enucleation scissors to sever the nerve and surrounding tissues.

The blades are sufficiently concave, curved on the flat, and large enough to firmly hold and encircle the globe; and when locked are unable to exert undue pressure upon the globe. The dimensions of the forceps are such as to meet with the usual requirements as to size of the eye ball in enucleations of this character, for which the forceps are intended.

The forceps is made by Chambers, Inskeep Co., of Chicago, whom I wish to thank for several valuable suggestions in the getting up of the instrument.

AN OPHTHALMIC BRACKET ATTACHMENT.

This device, which has also been made for me by the Chambers, Inskeep Co., of Chicago, can be put on any gas bracket that is made. It has either two, three or four arms; the illustration shows one with two arms. This device permits one to have a separate gas jet for a condenser, retinoscopic chimney, and a plain light; or the operator can have such an arrangement of lights as he wishes.

Each arm is about seven inches long and has an independent gas connection. The whole can be completely revolved about the attachment to the bracket, as the illustration shows. Each light can be used separately or all can be in use at one and the same time.

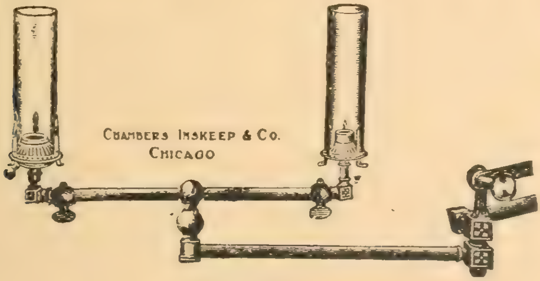

FIG. 2.

This little device obviates the necessity of several independent brackets or the changing of the lights or various chimneys, while making different ophthalmic examinations in the dark room. It also allows the light to be put in many more different angles than with the ordinary bracket.

This attachment is also very convenient in examining railway employes for color blindness, as each jet can have a separate color, or a series of colors, by simply placing the proper colored glass slide back of the lens in the condenser or back of the aperture in the opaque chimney.

The accompanying cut of the device clearly shows the arrangement and its appearance as it is attached to the gas bracket. Another point in its favor is its comparative little cost.

100 STATE STREET.

At the last meeting of the County Medical Society of New York Dr. Frank Van Fleet, the incoming president, said that for the ninety-sixth time the County Medical Society of New York was listening to the annual address of a new president. Despite the long years of service of the society to the profession of the state and of the country, a lamentable misapprehension keeps the New York State Society from association with the national body of physicians in the country. While the friendliest feeling exists between the vast majority of the members of the New York County Medical Society and the New York County Medical Association, the best proof of which is the fact that 67 per cent of the members of the New York County Medical Association are also members of the New York County Medical Society, still the two organizations exist, and the fact of their dual existence lessens their usefulness and influence.

Committee on Reconciliation.—After the president's address, Dr. D. St. John Roosa offered a resolution to the effect that a committee of five should be appointed by the president of the New York County Medical Society to confer with a similar committee from the New York County Medical Association for the purpose of discussing the ways and means of reconciliation between the two bodies so as to bring the matter formally before the New York State Medical Society at its next meeting in Albany. This resolution was adopted without a dissenting voice.

At the last meeting of the surgeons for the Chicago, Milwaukee & St. Paul Railway, held December 12th, in Chicago, Dr. C. D. Wescott, of Chicago, read an interesting paper on "Plastic Surgery of the Face and Eyes."

THE
OPHTHALMIC RECORD
A MONTHLY REVIEW OF THE PROGRESS
OF OPHTHALMOLOGY.

VOLUME XI, No. 1. CHICAGO, JANUARY, 1902. NEW SERIES.

EDITORIAL.

TRAINING IN OPTICS.

All ophthalmologists agree that the correction of errors of refraction is properly a portion of their professional work. Some go so far as to advocate legal restrictions to prevent any one who does not possess the medical degree from undertaking it. Even apart from the measurement and correction of refractive errors, the professional care of an organ which is so completely an optical instrument as the eye should not be undertaken without a proper training in optics.

Any scheme of education for the ophthalmologist that omits such training or slights it, must now be regarded as unsuited to the needs of the time. It has already been pointed out in these columns (January, 1900,) how, by individual study, the ophthalmic surgeon may correct the lack of proper instruction in optics as a part of his preliminary training. But the possibility of doing this, does not make it less the duty of the medical school to furnish to the practitioner the training that he really needs.

The training in geometric and physiologic optics, which ought to be available for anyone who intends to enter upon ophthalmic practice, cannot be required as a preliminary to entrance upon the course of medical study. Even the possession of a college degree would not guarantee a sufficient acquaintance with them. Still less is it possible in the crowded medical curriculum to insert a sufficient course in these branches and require it of all medical students.

Nevertheless the student of ophthalmology should have this instruction early in the period of training for his professional work. It is a foundation, without which he will miss much of the significance of the other branches, or for lack of which these will be mastered only with greater difficulty. The only practical plan is to recognize in the curriculum what is being universally recognized in the ordinary college curriculum—the importance of elective studies.

So poorly does the ordinary medical curriculum provide for the education of the ophthalmologist, that those who wish to prepare for special practice turn usually to the post-graduate schools. But these are primarily and chiefly clinical, while theroetic optics is not a clinical study. Then the essential plan of post-graduate schools, giving short courses and admitting students at any time, is quite unsuited to the profitable pursuit of the study of optics, which must be systematic.

It seems strange that even those medical schools which have done most to raise the standard of general medical education, should have done so little to meet some of the needs of modern ophthalmology. It is not desirable that ophthalmology should be sharply separated from general medicine, as is dentistry. But if the schools of general medicine persists in ignoring the most important needs of those who are preparing themselves for ophthalmic practice, a class of narrow special schools is certain to spring up; and in the end to attract many of those who intend to enter upon this special line of work.

Ophthalmology must remain a branch of general medicine; and to that end those who are engaged in teaching it should strive to develop their work, so that it will meet the needs of those who intend to practice this particular branch, as well as they now meet the needs of those who engage in the practice of general medicine or surgery. One step in this direction will be the offering of opportunities for thorough training in optics.

Many universities already furnish a sufficient course in geometric optics, which might be made accessible to medical students who desire it. Yet even where such opportunities are offered they would be improved by teaching this branch with special reference to the refraction of the eye, and physiologic optics would have to be added to make the course such as would meet the needs of the student of ophthalmology. EDWARD JACKSON.

Simeon Snell, in the *Ophthalmic Review* for February, reports a case of glaucoma induced by a one per cent. solution of cocaine.

REVIEW OF PROGRESS OF OPHTHALMOLOGY.

OCULAR THERAPEUTICS.

BY A. W. CALHOUN, M. D., LL. D.
ATLANTA, GA.

Chemistry is so continuously presenting to the attention of the profession such a mass of new remedies, that it is quite difficult to consider them all or decide which are worthy of being retained. There are some, however, that deserve high places in the esteem of the specialist, and to these I wish to direct the attention of the oculist. It is not my purpose to discuss other than the more recent remedies.

In ocular therapeutics, cocaine has long since attained such a high place among the comparatively new drugs, that it needs only to be mentioned as one of the indispensables in ophthalmic practice, the use of which is not to be supplanted.

Protargol in ophthalmology is, beyond question, one of the most valuable remedies given us in recent years. It is in the form of a fine, yellowish powder, and contains about 8 per cent of silver, and is freely soluble in water. It is considered better than any inorganic silver salt yet used. Its application produces almost no pain, is an excellent antiseptic and is less dangerous to the corneal epithelium, at the same time penetrating deeper than silver nitrate, and on this account can be used much more freely and frequently. Its long continued use will occasionally cause argyrosis, contrary to the observations of some writers. I have seen several unmistakable cases recently. One of its chief advantages over nitrate of silver is the fact that in 5 to 20 per cent solutions it can be applied to the conjunctival surfaces three to five times a day, or oftener if necessary, and, to make its action more effectual, it can be applied by the patient's attendant. As a prophylactic in ophthalmia neonatorum several authors have used it in 2 to 10 per cent solutions, and consider it preferable to the 2 per cent solution of nitrate of silver as used in Crede's method. There is no irritation when the protargol is used. Nitrate of silver, as a prophylactic, has not been in general use, because of the objectionable fact that it causes more or less irritation; but protargol, being just as valuable and of easy application (and this objection being eliminated), there is every reason why it should be adopted in routine practice both by the oculist and general practitioner. Protargol has a very broad field of usefulness in the different ophthalmias, in some of which the results could not be more satisfactory.

Its greatest usefulness is perhaps shown in the acute suppurative conjunctival inflammations. In gonorrhœal ophthalmia and ophthalmia neonatorum the effect is often brilliant, in many instances acting almost as a specific. The customary precautions in regard to cleanliness, antisepsis, etc., should be carried out, and the protargol, in 5 to 10 per cent solutions (as strong as 50 per cent solutions have been successfully used on adults), should be mopped by means of cotton over the conjunctival surfaces two or three times a day. In these two diseases, in particular, it is certainly an important advance upon the silver nitrate.

Indeed it acts satisfactorily in all acute suppurative conjunctival inflammations, in phlyctenular conjunctivitis, and in purulent dacriocystitis, by injections into the lachrymal sac, and even in some forms of corneal ulcers. It acts splendidly in dacrio-cystitis in infants, using it several times a day, and thoroughly emptying the sac of pus just before instilling the protargol. In chronic conjunctivitis, trachoma and kindred inflammations, it seems to have but little effect, except in those cases in which more or less suppuration is caused by the granulations. In the shape of a strong ointment it is recommended in blepharitis.

ARGENTAMINE, another of the new silver compounds, has been much used in affections of the conjunctiva by many writers, and highly praised by those who have had experience with it. In trachoma it is specially recommended, as it penetrates far deeper into the tissue, and is more germicidal than true silver nitrate. "Therefore," says one observer, "argentamine is indicated in acute and chronic conjunctival catarrhs, in trachoma, in follicular catarrh, in ophthalmic blennorrhœa, and in infantile blennorrhœa, both as prophylactic and remedy." It is used in a 5 per cent aqueous solution, by being painted on the everted conjunctiva in the ordinary manner three or four times daily.

ARGONIN and NARGOL are two of the most recent contributions to ophthalmic remedies. They are given to us as improved forms of silver, and are said to be efficacious in the same class of diseases for which the silver nitrate has been used, with none of the bad effects of the latter.

It would seem that we are about to be flooded by the energetic and wide-awake chemist with new remedies for the cure of conjunctival diseases. For example, we have the new silver preparations—ABRIN, ACTOL, LARGIN and ITROL. Advocates abound for each of these, who, after satisfactory trials, recommend them for the cure of acute and chronic affections of the conjunctiva and other diseases, and still others, as:

IODIC ACID, used in solid sticks in chronic trachoma.

ACETICO-SALICYLIC ACID (aspirin), an antipyretic and anti-neuralgic, recommended in eye diseases dependent upon a gonorrhœal-rheumatic basis.

GUAJASANO, used in 1 per cent solutions as a cleansing agent in slight conjunctival inflammations.

VALIDOL, employed in 15 to 20 drop doses in headaches and visual disturbances, in scintillating scotoma.

ALUMNOL, indicated in purulent conjunctivitis.

XEROFORM, used in traumatic and infected corneal wounds, and said to be more effective than iodoform.

DIONINE, a morphia derivative, is a local analgesic and is employed in the deep-seated pains of iritis and glaucoma.

ACOINE, when used with a sub-conjunctival injection, renders the injection painless.

ARECOLIN (the only new myotic we have) is used in 10 per cent solutions. Its action lasts a shorter time, but it is much quicker than eserine.

The most remarkable and interesting medicament that has been evolved in recent times, is perhaps, ADRENALIN, for before it lie unlimited possibilities. In the place of solutions of the suprarenal gland, we now have its active principle, ADRENALIN CHLORIDE, perfected and given to us by Dr. Takamine. A single drop of a solution of 1 to 10,000 instilled into the eye blanches the conjunctiva in less than a minute, leaving the pupil neither dilated nor contracted. In nearly all inflammatory conditions of the eye it is useful, as it is without injurious properties, neither poisonous nor irritating, and is the most powerful of all known hemostatics or astringents. The ordinary operations upon the eye are rendered bloodless by its use; and, by the addition of cocaine, painless. Indeed, using the two remedies at the same time, intensifies the effect of each. In all the conjunctival diseases where protargol is indicated, apply adrenalin after the use of the former and excellent results are obtained. In corneal ulcers (catarrhal), phlyctenular troubles, scleritis, keratitis (even interstitial) and acute eczema of the lid, it is invaluable. I am sure the cure of trachoma is hastened by its use. Injected into the tear duct, it reduces the swelling in dacrio-cystitis and lessens the discharge rapidly. The dacrio-cystitis of infancy is cut short by it. It is without doubt good in iritis, acting not only as an astringent, but augments the effect of the atropia and clears up the muddy vitreous and aqueous humors. I have but little experience with it in glaucoma, but it has been recommended here for the reduction of ocular tension, and I have no doubt of its good effect in acute glaucoma. Neither have I used it in iridectomies or cataract extractions. We have in it a wonderful agent in controlling local congestions and inflammations, and in eye, ear, nose and throat work it is indispensable.

ATRABILIN and EPINEPHRINE, both preparations made from the suprarenal capsule, are recommended for the same purposes for which adrenalin is used, but will probably not hold their place alongside the latter.

Among the comparatively recent drugs for the production of local anæsthesia, HOLOCAINE has proven its value and its efficacy in so marked a manner that we may consider that it has come to stay. One prominent writer says, "Holocaine should supersede cocaine in ophthalmic surgery." In many cases it can be used to greater advantage that cocaine, because it does not dilate the pupil or disturb the accommodation or increase the tension, and is often efficient in cases of inflammation which resist cocaine. In 1 per cent solutions it is antiseptic, acts quickly and causes no pain, and less hyperæmia and less disturbance of the corneal epithelium follow its use than of cocaine. This is an important point, as we often keep the eye anæsthetized for half an hour to an hour. As it is systematically poisonous, it should not be used hypodermatically, nor applied to other than ocular mucous membranes. Holocaine does not primarily contract the blood vessels, and, therefore, does not tend to control hemorrhage as well as cocaine; indeed, the bleeding is more free, hence for muscle operations, it is not quite so desirable as cocaine. It has been found to be of great value in operations upon the cornea, iridectomies and cataract operations.

EUCAINE is another proposed substitute for cocaine. Favorable reports have been given, but, as a rule, the trend of opinion is that it is not so satisfactory as the before mentioned local anæsthetics.

NIRVANIN, still another anæsthetic, has been recently proposed for local use, but it has not as yet been much used in ophthalmology. A few writers, however, speak well of it.

EUPHTHALMIN, in 5 to 10 per cent solutions, is an excellent and powerful mydriatic, dilating the pupil in fifteen to twenty minutes sufficiently for ophthalmoscopic examinations, and in thirty to forty minutes to its maximum. At the end of twenty-four hours the contraction of the pupil is complete. On account of its brevity of action, it is superior to any other mydriatic; in fact, it is without a rival when used for dilating the pupil for diagnostic purposes. It affects the accommodation only very slightly, and no unpleasant systemic effects have been observed, but it is known to act less promptly in the aged than in younger persons. As an aid in ophthalmoscopic examinations, it is entitled to a prominent place in ophthalmological work.

I need only mention HOMATROPINE, COCAINE and SCOPOLAMINE as substitutes for atropine for diagnostic purposes, but I can recommend the mixture of 2 per cent each of cocaine and homatropine as acting admirably in examinations of the refraction.

Under the head of ophthalmic therapeutics or medication, it is interesting to note that the sub-conjunctival injections of bi-chloride of mercury are not so much in vogue as formerly, because of the danger of more or less serious local inflammation resulting; and, besides, so little of the antiseptic enters the eye that it is of no practical benefit. On the other hand, the use of sub-conjunctival injections of normal salt solutions is increasing, is without danger, and specially indicated in parenchymatous keratitis, chronic corneal ulcers, iritis, choroiditis, opacities of the vitreous, retinal detachment, etc.

A multitude of suggested remedies has not been considered in this paper, but the foregoing review would warrant the statement that the oculist has not been remiss in studying and adopting most of the recent good things in the way of ophthalmic medication.

Atlanta, Ga., November 28, 1901.

REVIEWS.

The Atheromatous Ulcer of the Cornea. Dr. E. Fuchs. In regard to the atheromatous ulcer of the cornea, Dr. Fuchs (*Graefe's Archives*, LIII., 1) has presented an interesting paper. He finds that dense cicatrices of the cornea, especially those containing incarcerated iris tissue undergo retrograde changes, accompanied by deposits of hyaline material and lime salts. Later these may become the seat of purulent process with breaking down of tissue, and in the cavity thus formed may be found fragments of lime salts lying free. This class of ulcer progresses rapidly to perforation, and even to panophthalmitis and phthisis bulbi. Arlt appears to have been the first to have made use of this title, probably having in mind its analogue, the degenerative process, with deposits of lime so commonly present on the intima of the aorta. Other terms that have been used to designate this condition may be objected to as being too comprehensive or misleading as to the pathology of the process. "Sequestrating keratitis," as proposed by Dr. Wintersteiner, seems very well to describe the nature of the process, and to be a better title than atheromatous keratitis; the latter seems, however, to have acquired certain rights through long usage. This ulcer is the result of necrosis in a cicatrix; the necrotic area becomes a sequestrum through suppuration induced by invasion of bacteria and peculiar structural arrangement of the cicatrix and its epithelium. This cicatrix, as is usual after an extensive perforation of the cornea, is composed of what remains of the cornea and imprisoned iris, rendered more or less compact by newly formed connective tissue, together with evidences of Bowman's and Descemet's membrane, iris pigment and sphincter fibres, at first rich in cells and vessels. Areas of unequal density appear, vessels and cell nuclei disappear for the most part, those that remain being small and insignificant, the only indications of tissue being shown by striation due to fibres running in different directions, the interfibrillary spaces being few and narrow. The vitality if such tissue is reduced to a minimum. In soluble albuminoid material in the form of hyaline masses and lime salts are deposited in the cicatrix, by preference near the surface, the hyaline material even in the epithelium. The hyaline transformation and the calcification both begin in the tissue proper as fine granules, the hyaline becoming confluent, as it were, but with sharply defined borders, the lime granules becoming more and more numerous, and finally presenting the appearance of uniform infiltration without well defined line of demarcation. Along the uneven edges of these lime placques free granules are continually being added. After a time separation takes place between this and the cicatrix enveloping it, but whether actually producing a space between them may be questioned. At all event there is loss of the former close union, even though there may be contact, and this permits an invasion of epithelial and pus cells between the lime placque and the tissue proper, resulting in its being finally crowded from its position. The nature of the underlying tissue exerts a certain influence upon the epithelium resting upon it, as is shown by its thickness when it covers a very vascular area. It levels off the inequalities of the surface by becoming thicker over indentations and thinner over elevations, and toothlike it passes down into the depressions, while the tissue mounts up between these prolongations, producing thereby a papillary structure having a smooth surface, which, when sectioned in various directions bears marked resemblance to the columnar appearance of epithelioma. The exuberance of the epithelium being in direct proportion to the vascularity of and dependent upon the nourishment derived from the tissue upon which it rests, that which covers the denser and less vascular part of the cicatrix will show atrophic changes. This atrophic epithelium is thinner, has fewer layers and is poor in individual quality. Over portions of the cicatrix it will be found to be entirely wanting, as epithelium resting upon lime placques or densely sclerosed tissue can of course derive no nourishment from them and must consequently die. Hornification of the epithelium is a frequent change. The epithelium suffers injury by the formation of spaces between individual cells. The vesicular formation known as keratitis vesculosa, or bullosa, is non-inflammatory in character, and found in eyes that have been subjected to long and continued increase in tension. The epithelial layer is elevated either alone or as resting upon a thin, fibrous layer, by which the walls of the vesicle acquire greater solidity. When this vesicle ruptures the cicatrix becomes bare at this point. The epithelium may disappear by atrophy, by cornification with exfoliation, through separation of individual cells by infiltration of fluid, and by an elevation of the epithelial layer in the form of a vesicle which finally ruptures. Small abrasions or the tearing away of larger portions easily resulting from slight injuries, when the attachment is poor, frequently starts up the atheromatous ulcer. The behavior of the epithelium with regard to the lime placque, behind and around it grows, is somewhat peculiar. Although it may have disappeared from the anterior surface of the placque, it may be found upon the posterior surface, where it becomes a factor in the elimination. When the placque is not exactly superficial, nor yet too deeply situated, the epithelium extends through the cicatricial layer, covering it, to its anterior surface, and when it has reached this, curves around its edge to the posterior face. It seems almost as if the placque exerted some attraction upon the epithelium, or as if the epithelium, on the other hand, possessed the desire of removing the placque from the organism at large by enveloping it. The same thing is noticed in the case of foreign bodies which lie beneath the epithelium without setting up irritation. The extrusion of inorganic bodies, as glass and celloidin, used to replace corneal tissue may be cited. It may be asked whether the foreign body exerts some chemical action upon the epithelium, a sort of chemotaxis. When, as a result of epithelial defect, bacteria enter a poorly nourished cicatrix an inflammation starts up, which is associated with an extensive necrosis, around which is a well defined line of demarcation. By suppuration all connection between the necrotic mass and the more or less healthy surrounding tissue is interrupted. The tendency of this suppuration is not towards the periphery, but downwards. Cross section of the purulent infiltration territory presents an appearance very much resembling the progressive border of the ulcus serpens. The latter type of ulcer proceeds rapidly along the surface towards the periphery, the atheromatous ulcer, on the other hand, rarely exceeds its original territory, but rapidly extends downwards, oftentimes setting up panophthalmitis. When the sequestrum becomes completely separated, it lies free in the cavity of the ulcer. A sequestrum can likewise arise from tissue which contains neither hyaline nor lime deposits. The central portion more frequently becomes necrotic because that part is less vascular than the periphery, which may even contain areas of partial calcification, yet escape necrosis. The separation of the sequestrum from its attachment takes place through a complete destruction of the pus infiltrated, surrounding tissue, insomuch as the densely arranged fibres of the cicatrix are destroyed by the pus corpuscles lying between them. This solution begins at the surface and proceeds downwards. Meanwhile the epithelium proceeds over the border of the ulcer, into the cavity, where it meets with fibres not yet destroyed, which connect the middle and deeper layers of the sequestrum with the surrounding parts, therefore it does not extend farther in this direction. It continues to extend parallel with the surface, but towards the periphery. Those cases which came to a microscopic examination were, of course, of a severer type. Milder ones came only to necrosis and elimination of superficial calcified or otherwise impossible layers. In the severer cases, when the suppuration has extended deeply, the ciliary body and neighboring retina are covered with pus, the vitreous shows signs of purulent infiltration, and a florid panophthalmitis supervenes. This tendency to propagate itself deeply is observed when the atheromatous ulcer is compared with the ulcus serpens, which comes to necrosis and even perforation, panophthalmitis being one of the rarities. The make up of the cicatrix goes to explain some of the differences in their later clinical course. The cicatrix, whence starts up the atheromatous ulcer, contains sufficient iris tissue to permit an easy extension of the suppuration to the ciliary body. This same condition exists in cases of late infection of old cicatrices with imprisoned iris, thus giving ready entrance for bacteria to the deeper parts of the eye. The relations between these ulcers is close, in that both begin with a slight injury to the epithelium; in one, however, the suppuration goes on in depth without causing much disturbance in the cicatrix, whereas in the other the necrosis appears early in it. Sometimes both processes are combined. Preparations made by the method of Gram show masses of cocci to be present in the infiltrated tissue around the sequestrum, and occasionally in the more superficial layers. The possibility of post-mortem increase of the bacteria was prevented by immediately immersing the enucleated eye in the fixing fluid. The atheromatous ulcer is therefore to be considered as necrosis of poorly nourished cicatricial tissue, and if severe may involve the entire thickness. The impulse to the ulcer is given by the introduction of bacteria, which is to some extent favored by an unhealthy condition of the epithelium. The necrotic portion is cast off as a sequestrum. The suppuration may extend to the deeper parts of the eye. The atheromatous differs from the ordinary ulcer in that in the latter the infiltration primarily causes the loss of substance, while in the former the necrosis is the primary change. Comparing the atheromatous with the ulcus serpens it is noticed that in the latter form, while the anterior layers are destroyed by suppuration, those posterior only partly become necrotic; in the former great masses come to necrosis, the suppuration being merely incident to the sequestration. Several carefully drawn plates are offered to explain the views of the author.

Wm. Dudley Hall.

REPORTS OF SOCIETIES.

CHICAGO OPHTHALMOLOGICAL AND OTOLOGICAL SOCIETY.

Meeting November 12th, with the president, Dr. Casey A. Wood, in the chair.

Dr. F. C. Hotz exhibited a boy of 10 years *with aphakia, who can read with his distance glasses.* The lenses had become opaque gradually. The cataract in the right eye was extracted by the linear operation two years ago, and six weeks ago the same operation was performed on the left eye. The vision of the right eye is now $\frac{20}{20}$ with + 14 D.; the left eye, $\frac{20}{50}$. With the + 14, which gives him perfect vision at a distance, he can read the smallest print without any difficulty. Many theories have been advanced to account for them. That of Oliver is probably correct. He believes it to be due to a very small aperture in the capsule of the lens, which contracts and makes a pin-hole opening. The boy can read anything with the right eye, which shows a very small, clear opening in the center of the capsular membrane; while with the left eye, which shows a faint, uniform haziness of the pupil, he can read only by adjusting + 3 D. to the distance lens; but when a pin-hole opening is placed before the left eye, it can read with the distance lens alone.

Dr. Hotz does not believe in the theory of the action of the ciliary muscle. He also referred to a somewhat similar case in a boy of 10, who had congenital cataracts, which were removed by repeated needlings. With the glass + 13, which gave him V. $\frac{20}{30}$ in one eye, he could read Snellen's 0.5, the finest type on the reading cards, with perfect ease. There was a very small triangular slit in the capsule in this case. In testing the vision of a gentleman who had a cataract removed several years ago, + 12 gave him $V = \frac{20}{20}$, and it was found that he could read print at a distance of about two feet by adding + 1.50 to his distance lens. There, too, the opening in the capsule was comparatively small.

Dr. C. D. Wescott related a similar case, in which the patient was able to see without the addition of a lens to his distance glasses.

Dr. E. F. Snydacker called attention to the theory of the change in the form of the vitreous during accommodation, which is attributed to the action of the ciliary muscle on the vitreous, changing its shape.

Dr. C. P. Pinckard related a case of congenital dislocated lens, where the border of the lens lay in the pupil, so that the patient could look both through the lens and over it. Vision through the lens was minus 10, and above the lens plus 14. The dislocation of the lens progressed slowly, and when it was so far advanced that the lens was out of the pupil, the patient, of course, needed a plus glass to see with. The point brought out was that there was a slight amount of tearing, or such an amount of stretching of the suspensory ligament of the lens as to make the lens more spherical, and consequently the eye myopic, when the condition of the suspensory ligament is not suspected.

Dr. Horace M. Starkey exhibited a young lady with fugitive edema of the upper eyelids, beginning first in left lid ten years ago, and the right lid being attacked this year. No history of similar trouble in other members of family.

She noticed, ten or twelve years ago, when a child in school, that the skin of the upper lid began to sag; not a swelling, nor a drooping of the whole lid, but the skin hung down over the eye, as is frequently seen in old people. The condition has progressed until it finally has reached the point where the skin of the left lid frequently hangs down so far as to roll down over the lashes and impair vision. It is not a ptosis, and it is worse when she is taxing her eyes, or if she is very tired. She has been resting for the past week, and the condition is now considerably improved.

She has a high degree of myopic astigmatism, two and three-quarters D in one eye, and one and three-quarters in the other. The glasses she has been wearing correct just about one-half of this. With better correction it is hoped that there will be improvement, but it will probably be necessary to take out a fold of the integument of the upper lid before complete relief will be obtained.

There is no history of inflammation of the eyes or eyelids, nor is there any history of similar trouble in other members of the family.

Dr. J. E. Colburn said that in nearly all such cases an hereditary tendency was present. In one case quite an extensive section was taken out of the integument, but the condition returned.

Dr. E. F. Snydacker said the condition is similar to the blepharochalasis described by Fuchs, due to an angio-neurotic edema of the lids. It is usually seen in neurotic families, and exhibits a marked hereditary tendency.

Dr. C. F. Hotz said that the condition was interesting to him, because, in his opinion, it is the beginning of that condition which he described in 1879, as a relaxation of the palpebral skin, a condition to which Fuchs afterwards gave the name of blepharochalasis. Owing to a recurrent angio-neurotic edema, the skin loses its fastening to the tarsus, so that when the lid opens and slides back over the eyeball the skin is not retracted with it, hence falls over the retracting eyelid. In the case he described it was completely separated, and fell down to the ciliary border, so that when the lid was closed the skin was perfectly smooth, but when the lid was opened the skin fell forward so as to hide the long eyelashes. He came to the conclusion that the deformity was due to a loss of connective tissue bands between the lid-skin and the tarsus, and this gave him his first inspiration to the operation which he afterwards applied to entropion. The skin along the upper border of the tarsus is incised and sutured on to the tarsus. If you examine this case here carefully you will notice that the relaxation is not limited to the skin above the tarsus, but that it is separated also from the tarsus, to which it is still fastened by only a few strands, which in the course of time will also loosen. It is really not necessary to sacrifice any part of the skin, unless there is a great superabundance of it, or an overstretching, as in older people. The essential point is to anchor the skin firmly to the tarsus, thus restoring the natural condition.

Dr. Casey Wood mentioned a case (a man, aged 55) he saw recently, which exhibited an attack of fugitive edema of the conjunctiva. The gentleman was suddenly attacked with a large swelling of the bulbar conjunctiva, which came on without any apparent reason. It was so marked that it was difficult for him to close his lids, and when they were open the swollen mucous membrane encroached on the corneal area. The swelling remained for about four or five hours, and disappeared without treatment as quickly as it came. The lids showed much the same condition as seen in Dr. Starkey's case. Doubtless the conjunctival edema was merely a part of the same process that from time to time occurred in palpebral skin.

Dr. Starkey, in closing the discussion, called attention to the fact that in this case the affection had been steadily progressing. The patient being only twenty years of age makes the condition an exceedingly interesting and unusual one.

Dr. H. B. Young, of Burlington, Iowa, exhibited a case presenting a rather unusual appearance of both eyelids. On the superior tarsal folds there are streaks of pigmentation. The man is an engineer and runs a fast train. He says he has had no trouble with his eyes until they began to use electric headlights, and he thinks it must be an accumulation of carbon dust from the headlight. He says he has had these particles of carbon removed once, but the trouble has recurred. There is no scratching, but simply a feeling of fullness and a little discomfort in looking upward.

Dr. Oscar Dodd presented a woman with *sclerosis of the cornea.* When first seen there was a spot of infiltration, densely white, looking like calcareous material, about six millimeters long and two wide, to the temporal side of the pupil. Between this spot and the margin of the cornea there was a slight haziness and considerable vascularity. To the nasal side, over the pupil, were a few small white dots. The spot in the right eye was thoroughly curetted, removing everything except one little portion at the upper part, which could not be reached. These deposits were entirely below Bowman's membrane. It healed promptly and remained quiet for about five months. About a month ago the eye became a little irritable again. Just above the pupil, toward the nasal side of the former spot, was a small spot of infiltration, a little larger than the head of a pin, with a mesh of blood vessels running over to it from the temporal side. A mild collyrium proved ineffectual, and two weeks later it spread to about its present dimensions, 3 by 4 mm. It has continued about the same, except that the infiltration around the dense spot is less, and that the spot itself is denser than it was two weeks ago. The eye is also more irritable. She was given pilocarpine injections for about ten days, and is now getting salicylates, about 10 grains, three times a day.

Dr. F. C. Hotz said that the etiology of these cases was obscure. He saw the case with Dr. Dodd some time ago, and suggested pilocarpine, as the sweating cure had done some good in similar cases. The case now appears to be at a standstill; the sclerosis is not increasing, and it seemed to him that the more recent opacity over the nasal part of the cornea is not quite so dense as it was. The cases he has seen were unmistakably due to episclerotic inflammation, one to a cyclitis. In the case presented there has never been any episcleritis, but the eye shows unmistakable signs of irritation, although the eyeball never was sensitive. However, he is inclined to believe that there is a low grade of cyclitis responsible for this condition, but whether there is any constitutional condition is very doubtful, thus making the management of this case exceedingly difficult and unpromising.

Dr. H. B. Young, of Burlington, Iowa, cited a similar case.

Dr. Hobby, of Iowa City, saw the case and concurred in the diagnosis of interstitial keratitis. Dr. Young began subconjunctival injections of normal salt solution, and was surprised to see the cornea begin, in a short time, to clear up. The clearing was from periphery to center, and at the end of six months the iris was again wholly visible. The central part of the cornea remains clouded. The pupil area is thus obscured, but a few points of synechia can be made out, and the lens appears cataractous.

Dr. Casey Wood called attention to the fact that late cases of interstitial keratitis, whether syphilitic or strumous, are prone to follow an entirely different course from those that occur at the usual period—early in life. In the former, sclerosis occurs much more frequently; they are less influenced by treatment and the usual result is not, as a rule, as good as in the adolescent variety. In the absence of acute symptoms, massage of the lids upon the cornea, with stimulating ointments, attention to the general health, etc., were indicated. Anti-syphilitics had even less influence on the course of the disease in old cases than in the youthful cases. On the other hand, general tonics, and particularly iron and arsenic, were very useful.

Dr. W. T. Montgomery has obtained universally good results from the administration of small doses of calomel, one-tenth grain every two hours, keeping it up indefinitely, except when there was salivation. He gives calomel whether there is a specific history or not. The treatment is purely empirical.

Dr. Thomas A. Woodruff presented a case of *thrombosis of the central vein of the retina,* which he had shown the society one year ago. The circulation has been re-established, and vision has increased from counting fingers at 18 inches to $\frac{20}{30}$. The vessels are of normal size, except that the venous trunks are somewhat swollen. The retina is transparent, except at the upper outer edge of the disc, where there is a small area extending to the macular edge, in which the remains of exudates can still be seen. The papilla itself is pale and has lost much of its natural translucency.

Dr. F. C. Hotz was very much interested to see the marked improvement which had taken place in this case. Originally there was considerable disturbance in the fundus of the eye, and now there is a complete disappearance of all the symptoms, so that there is nothing to see but a little blanching of the disc. There is good recovery of central vision. He had a similar case, which came to him about twenty-four hours after the occurrence of the thrombosis. It affected the lower main branch of the retinal vein, which was enormously distended up to the margin of the disc, where it suddenly shrunk to a very fine thread. There was edema, and streaks of hemorrhagic effusion along the veins, and vision was reduced to the perception of fingers. The patient was a robust young man, who, while sitting quietly at home on Sunday evening, suddenly got blind in one eye. The changes in the fundus occurred gradually, as in this case; there was also over the macular region that peculiar opaque star figure. In the course of six weeks, when the sight had begun to return, there was a sudden relapse of blindness, due to a profuse hemorrhage; the ophthalmoscope showed a track of blood running down from near the papilla and accumulating in the lower fundus in a large puddle of blood. All this disappeared, and the eye recovered $\frac{20}{20}$ vision. The upper field just above the macula is cut off in a straight line. In the fundus everything disappeared except a few little irregular spots below the macula.

Dr. Wesley H. Peck exhibited a case of *central punctate diabetic retinitis* (Hirschberg), or typical diabetic retinitis, in a patient, who had diabetes for seven years.

Dr. Wesley H. Peck also exhibited a *series of cases of trachoma.*

Dr. Oscar Dodd says he has found that cases of diabetic retinitis without albuminuria are exceedingly rare. Most of them have both albuminuria and glycosuria.

Dr. C. D. Wescott saw a case of diabetic retinitis, where there was a very small quantity of sugar in the urine. It was a true case of diabetic retinitis, no albumin being found in the urine, and was diagnosed by the eye findings.

Dr. Peck, in closing, said there were no stellate or radiating appearances in the macular region indicating albuminuric retinitis, nor any large hemorrhages.

A very careful examination of the urine shows an abundance of sugar, 15 grains to ounce, no albumin whatever, specific gravity, 1028. The patient passes three quarts of urine every twenty-four hours.

Dr. Oscar Dodd exhibited a case of *early glaucoma in a boy, nine years of age.* About a year ago he began to have a severe headache, lasting about twelve hours, and at the same time he noticed rainbow colors. His sight began to fail, getting continually worse. His physician at home gave him internal treatment. He came to the infirmary two days ago, and, on examination, it was found that he had shadows in the left eye. The right eye is absolutely blind, tension is plus, and there is very deep cupping in both discs. The corneæ are anesthetic, and the pupils are widely dilated. Atropine has not been used.

Dr. Wesley H. Peck found, on examination at the Illinois Eye and Ear Infirmary yesterday, that in the right eye there was no perception of light, and that in the left eye the boy had central vision for light only. He has no projection whatever aside from the central projection. Up to a year ago his eyes were perfect. No cause could be assigned for the trouble. The boy has twelve diopters of cupping of the optic disc in both eyes. The cases of buphthalmos he has seen heretofore presented an entirely different appearance from the case shown this evening. It is the youngest case of glaucoma he has ever seen.

Dr. Oscar Dodd, in closing, said that he had presented the case because it was exceedingly rare. He has never seen a case under twenty years of age. Not having seen the case until the day before, it was impossible to make a thorough examination. He finds that writers differ much in giving the youngest age at which glaucoma may occur, except in congenital cases, which are usually classified under buphthalmos. Here we have increased tension and practically a normal eye. He is slightly myopic in the left eye, and in the right has a mixed astigmatism. In one thousand cases reported by Priestly Smith, the youngest is fifteen years, and among seven hundred cases reported by Knapp there are only three under twenty, one of them being ten years old. Stellwag reports cases at ten years, which had been blind about two years. DeWecker reports eight cases under ten years of age, but considered part of these cases as secondary, and not primary, glaucoma. He called special attention to the fact that this was not a case of buphthalmos. He does not believe that it will go on to a distension of the eyeball, as he has been practically blind for about a year. If any change would have occurred, it would be evident now in the neighborhood of the limbus.

Dr. W. F. Coleman presented a case of *optic atrophy*, whose vision increased from counting fingers at 6 inches in each eye to fingers at 4 feet under the sinusoidal current applied to the closed lids and nape of the neck ten to fifteen minutes daily. Vision is eight times better in the right eye, and seven times better in left than before treatment.

Jackson, in Vol. 2 of *Electro-Therapy,* by Jacobi, says, in reference to optic atrophy: "The general verdict of ophthalmologists is nearer that of Noyes to this effect: 'Electricity has failed to vindicate its pretensions to any real value, although by its capacity for exciting phosphorus, it fosters the hopes of a credulous incurable.'" Jackson adds: "Subject is still the field for the experimenter and student rather than for the practitioner of medicine."

To the above statement Dr. Coleman takes decided exception. So long as the report by Marcus Gunn (*Ophthalmological Hosp. Reports,* 1881) shows four cases in eighteen of optic atrophy permanently improved, and the experience of others as well as himself is equally favorable, he shall be justified as a practicing physician to use electricity in optic atrophy. When medicine becomes nearly an exact science, and the treatment of every diseased condition is not in some degree an experiment, then practitioners may justly leave doubtful results in the hands of the experimenter and student.

DENVER OPHTHALMOLOGICAL SOCIETY.

Dr. E. W. Stevens in the chair. Meeting of Oct. 15, 1901.

Dr. Bane showed a case of *corneal* wound, from a stick flying up and striking him in the left eye. A splinter of wood, about a half an inch long, was removed from the eye without causing pain. A flap of nearly the entire thickness of the cornea, 5x6 mm. in diameter was detached except at its inner margin. In fifteen days the flap became firmly attached to the cornea and almost as transparent as the normal tissue. The vision at first examination was $\frac{6}{21}$. Now vision is $\frac{6}{9}$. Eleven days after the above report the furrow had contracted to involve 2x3 mm. of cornea. A beautiful illustration of nature's effort to obliterate the evidences of injury.

Dr. Libby said he had a case of corneal injury with a flap wound of cornea and conjunctiva that healed perfectly in position.

Dr. Bane showed the case of a man, aged 58, with a badly *damaged eye from herpes zoster.* Numerous fine vesicles appeared in the inflamed area. Eyelids so swollen that they were not opened for three weeks. The forehead and right side of the nose are covered with numerous scars. A large ulcer has existed in the lower half of the cornea, leaving in its wake an uneven opaque facet 4 mm. in diameter. The pupil is displaced upwards, and practically filled with inflammatory exudate. The iris is adherent to the anterior capsule. In the supra-orbital region and upper half of the nose partial anesthesia exists. Patient says that the numbness was more extensive and complete during the active stage of the inflammation. O. D. V. Pl. O. S. V. $\frac{6}{9}$ W. — 4.00 C. ax. 65°.

Dr. Bane also presented a case of *exophthalmus* in a woman 54 years of age that had existed three weeks. No pain except in the region of the ear and temple for the first ten days. Movements of the eye limited by swelling of the orbital tissue and peresis of abducens. Swelling and chemosis more marked in the morning, when the patient finds it almost impossible to close her eyelids. Tension O. S. + 1. O. D. V. $\frac{6}{9}$, O. S. V. $\frac{6}{15}$. No specific history. The symptoms improved under protoiodid of mercury.

External veins enlarged, thus the venous blood is being carried from the orbit. There is possibly a growth in the orbit, near the sphenoidal fissure.

Dr. Stevens thinks the orbit contains something that is causing obstruction of the ophthalmic vein. He has seen cases of exostoses of the orbit that have produced these symptoms. He thinks that engorgement of orbit is being relieved by the facial vein carrying off the blood in place of the ophthalmic vein. He is of the opinion that the cause is a growth at the apex of the orbit.

Dr. Friedmann thinks it a specific case.

Dr. Black showed a boy, aged 9 years, whose right eye had been inflamed, followed by very poor vision, and that he could only see faintly the extreme lower part of objects. O. D. V. = fingers in lower part of field. O. S. V. $\frac{5}{6}$. The ophthalmoscope revealed a densely cloudy vitreous, with only a faint reflex above. No view of any portion of the fundus was obtained. After lying on his back for ten minutes, his ability to count fingers below was lost, but was restored in a few moments after sitting up.

Under sat. sol. kali iodide 5 gtt. t. i. d. and to increase one drop at each dose; locally, galvanism 3 m. a. negative pole over closed lid, and 1 per cent atropine once daily, his condition improved.

O. D. direct vision, fingers at 4 feet, the retina could be seen indistinctly above, and there is a large amount of floating membrane in the anterior portion of the vitreous.

Dr. Edward Jackson showed a *case of glaucoma* in a woman aged 35. Central vision was $\frac{4}{3}$ partly in the right eye, and $\frac{4}{5}$ in the left, after correcting the astigmatism, which was against the rule, and in the left eye amounted to 2 D.

Dr. Friedmann (Colorado Springs) would do an iridectomy on O. D. as a preventive operation.

Dr. Black would advise a removal of sympathetic ganglia on each side, as he thinks it a favorable case for this operation.

Dr. Stevens referred to the work of Priestley Smith, who called attention to closure of the circumlenticular space, and that in such cases it is necessary, when iridectomizing, to carry the knife through the suspensory ligaments.

Dr. Jackson said he had advised that an iridectomy be performed upon O. S. and then on O. D. as soon as more urgent symptoms demand it.

Dr. Stevens showed the case of a young woman, aged 27, with *double optic neuritis.* The vision in each $\frac{4}{60}$. The patient is sojourning in Colorado for pulmonary tuberculosis. Cerebral symptoms are entirely negative. When first seen she had a chronic suppuration of one middle ear, which yielded promptly to treatment, notwithstanding it had been discharging for many years.

In the discussion all present seemed to feel that sooner or later she would develop symptoms of meningeal tuberculosis.

Dr. Coover showed a man, age 23, who has, since April, 1900, several attacks of inflammation of left eye. No symptoms except blurred vision until the second attack, six months ago. Eye became inflamed, painful, vision gradually decreased, with floating spots before him. Pupil fixed, iris discolored, inflamed, swollen, ballooned, lens opaque. Network of vessels around edge of iris running on to the capsule, which are plainly vsible to the naked eye. T—1. Position and projection of light, poor.

Dr. Coover presented a case of *injury of the cornea, iris, ciliary body and lens, in a boy aged nine years.* Enucleation advised.

Meeting of Nov. 19th, 1901, Dr. Wm. C. Bane in the Chair.

Dr. Bane presented the case of *exophthalmus,* shown at the last meeting, showing improvement under the mercurial treatment.

Dr. Bane showed an *injury of cornea of right eye,* from a piece of kindling flying up and striking the eye. An irregular circular wound presented in the supero-temporal quadrant of cornea of O. D. extending through iris and lens. The whole cornea somewhat hazy, edges of wound irregular and pouting, moderate circumcorneal injection. Iris discolored and adherent to anterior capsule, lens opaque. O. D. V. has good light perception. O. S. V. $\frac{6}{6}$. Anterior chamber empty. Iris remained adherent, congestion increased and some chemosis appeared by the next day. Pus in the anterior chamber by second day. Gave subconjunctival injection of 1-2000 bichloride. Pus gone on the third day. On the eighth day pupil filled with inflammatory exudate. Tension a little increased. Corneal wound closed. The wound was reopened, the anterior chamber irrigated with normal salt solution, and most of the exudate removed from the pupil with forceps. The present condition shows the inflammation has greatly subsided, iris still discolored and pupillary margin adherent to opaque lens. Anterior chamber empty, and tension a little under normal. Light perception good. No tenderness of eye. Atropine has been used freely, and the eye bandaged. Internally he has had sodium salicylate and mercurial inunctions.

Dr. Jackson thinks the wound has closed and the swollen lens is causing the absence of the anterior chamber. He saw the case with Dr. Bane before he operated and was struck with the fibrinous exudate in the pupil that was later removed.

Dr. Black thinks there is a broad attachment of the iris to the corneal wound, and that it, together with the swollen lens, is causing the empty anterior chamber. That it is doubtful if the anterior chamber will be anything but shallow, even after the lens is absorbed, because of extensive iritic adhesions above. Further, if nature is allowed to take its course, the low grade of inflammation will promote an absorption of lens corticle in such form that an organized membrane will be left to block pupil and will be adherent to iris. Its removal then would be difficult and attended with danger. He advised operation soon, by opening limbus above wound with performance of broad iridectomy and then syringing out all of the soft lens matter.

Dr. Patterson (Colorado Springs) thought the same as the preceding speaker, and would be prepared to operate.

Drs. Jackson, Coover and Friedmann (Colorado Springs) would let eye alone, unless symptoms of an unfavorable nature presented.

Dr. Bane thought Dr. Black mistaken in the amount of adhesion between iris and corneal wound, because he removed a considerable proportion of iris at the operation performed.

Dr. Coover reported a case of *small, round celled sarcoma* occurring in the right eye of a child three years old.

Dr. Coover also reported a case of a boy with *cataracts* on each eye, as a result of fall from second-story window 14 years ago. In the left eye the lines became opaque three months after, and in the right eye five years after the fall. Vision after operation with + 7 D. = $\frac{20}{30}$.

Dr. Patterson, of Colorado Springs, reported case of *blindness in left eye following extraction of congenital cataract.* In the right eye he sees through a very thin iris, the pupil being blocked by opaque membrane. V. = $\frac{5}{60}$ with + 10. D.

Dr. Edward Jackson read a paper, *The Centering and Decentering of Lenses.* MELVILLE BLACK, Secretary.

The Royal Victoria Hospital, of Montreal, is publishing the results of a series of studies, the first number being in "The Primary Intradural Tumors of the Optic Nerve: Fibromatosis Nervi Optici," by Dr. W. Gordon M. Byers, assistant oculist and aurist. Royal Hospital and demonstrator in ophthalmology McGill University.

A Case of Symmetrical Bullous Keratitis.—J. Tatham Thompson reports this case in a man aged twenty-two years. He had suffered with intense photophobia for about three weeks. The general health was good, and he had never before suffered with any eye trouble. This present condition had begun in both eyes at the same time, with a sensation of dust, burning pain, followed by photophobia and lachrymation on the second day. There was no sticking of the lids. In order to make the examination, cocaine had to be freely used. The conjunctiva were slightly congested, and on both cornea was a ring of oval bulla radiating from about midway between the center of the cornea and its periphery, about twelve or fourteen in number, and oval. They were of a pale pearl color. The center of the cornea was clear V., about $\frac{6}{12}$ R. and L., and he read Jaeger No. 1. After pricking one of these bulla, it seemed but little changed. The writer used warm solution of boric acid and mercury perchloride, boric acid and alum, etc., but there was no improvement. He then used solution of formol 1-5000, and cocaine and atropine. The photophobia gradually subsided, and four months from the onset the patient was able to resume work. A ring of semiopaque spots was left. At first, there was a great deal of frontal neuralgia, which suggests a possible herpetic origin.—*British Med. Journal. Abstracted by N. Y. Med. Record.*

ABSTRACTS.

ABSTRACTS OF CURRENT OPHTHALMIC LITERATURE.

BY GEO. E. DE SCHWEINITZ, M. D., AND E. A. SHUMWAY, M. D.

Extra-ocular Complications of Sympathetic Ophthalmia.—De Wecker (*Annales d'Oculistique*, Oct., 1901) gives the details of a case of complete deafness following an attack of sympathetic ophthalmia, in a man 47 years of age, and gives references to three similar cases, published elsewhere. He does not think that the deafness was a coincidence, but the result of bacterial infection of the optic nerves, with a migration of the organisms along the base of the brain to the auditory nerves. Loss of hearing is not associated with any other ocular affection, except parenchymatous keratitis, and in order that the differences between the two conditions may be established, he gives the following conclusions as the result of his clinical experience:

1. In parenchymatous keratitis the deafness is secondary, and does not appear when the disease is localized in one eye.

2. The deafness does not appear when the keratitis is limited to the cornea; and is not complicated with symptoms of iridochonoiditis.

3. It does not appear of necessity on the side of the first affected eye, before becoming bilateral, the attack developing rather on both sides, with equal intensity.

4. Deafness is rarely complete during the progress of the keratitis: but appears, on the contrary, to grow more marked, when the keratitis begins to subside, and tends to improve as the eyes clear up.

5. The deafness is never complete in parenchymatous keratitis; moreover, the vision is never more affected because of the ear complication.

6. The reduction of visual acuity is often much less pronounced than that of hearing.

Investigations on the Pathogenesis of Sympathetic Ophthalmia.—Bellarminoff and Selenkowsky (*Archiv f. Augenheilk., Sept.,* 1901) have repeated the experiments of Moll and those of Deutschmann on which their respective hypotheses as to the etiology of sympathetic ophthalmia were based, and have concluded that neither hypothesis is borne out by experimental or clinical facts. In rejecting these and all other theories hitherto proposed, they suggest that sympathetic inflammation in all its forms is due to toxines, which are produced in the primarily affected eye by the bacteria introduced, and are carried to the other eye through the lymph channels and by diffusion. They believe that the only definitely established anatomical connection between the two eyes is the lymph space in the optic nerves,—the so-called intervaginal space of Schwalbe, which exists between the dural and pial sheaths. By their experiments they have shown that a lymph current passes both from the brain to the eye, and *vice versa*, depending on the comparative pressure in the two situations. Injections of filtered toxines of staphylococcus pyogenes aureus, into the vitreous chamber of rabbits, when the injections were repeated on several successive days, produced, in 8 out of 19 animals, changes in the fellow eye similar to those seen in sympathetic ophthalmia: iritis with fibrino-cellular or sero-fibrinous exudate, with characteristic deposits on Descemet's membrane, as in the serous form of sympathetic ophthalmia; further, fibrino-cellular iridocyclitis with more or less involvement of the choroid, and often with the appearance of a papillitis, and they believe that the hypothesis of the absorption of toxines will explain the chief clinical phenomena in man. In cases in which considerable time elapses between the original injury and the sympathetic trouble, they assume either a fresh infection independent of the earlier injury, or else that a part of the bacteria from the original injury have preserved their vitality and virulence, and that after a certain time, under the influence of more favorable conditions, they begin to increase, and produce toxines which are absorbed and carried to the fellow eye. The occurrence of sympathetic inflammation after enucleation of the injured eye would be explained by the retention of bacteria in Tenon's capsule, which connects with the intervaginal space through the cleft in the outer nerve sheath. That injuries of the ciliary body are especially liable to cause sympathetic trouble is probably due to the fact that the perichoroidal space which connects the eye with the intervaginal space of the nerve begins in this position, so that the toxine can be more readily absorbed.

Treatment of Affections of the Lachrymal Passages by Protargol-gelatin Sounds.—Antonelli (*Annales d'Oculistique, Oct.,* 1901) writes again very favorably of the use of 50 per cent. protargol-gelatin sounds in the treatment of refractory inflammation of the lachrymal canal. The silver salt does not lose any of its properties by incorporation with the gelatine, the sounds are readily introduced, are not annoying to the patient, and the protargol has an opportunity for a prolonged action upon the diseased tissues during the slow liquefaction of the gelatin.

Cysts of the Iris.—F. Terrien (*Archives d'Ophthalmologie,* Oct., 1901) gives a careful clinical and microscopical report of a serous cyst of the iris, spontaneous in origin, in a young man 19 years of age. The cyst was situated in the iris stroma, was very thin-walled and was lined by a single layer of endothelial cells, of the same type as those covering Descemet's membrane, and the anterior surface of the iris. He believes, with Schmidt-Rimpler, that these non-traumatic serous cysts are always retention cysts, and are developed by the closure of one of the crypts on the anterior surface of the iris. He divides cysts of the iris (serous, pearl and dermoid) into two groups: *cysts by inclusion* and *cysts by retention.* Inclusion cysts may be congenital (dermoid cysts), or traumatic in origin (pearl cysts). Cysts by retention appear to be always acquired, and they may be either of spontaneous or traumatic origin; some may be congenital, however, the obliteration of one of the crypts of the iris taking place during intra-uterine life.

Praecorneal Tumor Following Episcleritis.—W. Aitland (*Archiv. f. Augenheilk.,* Sept., 1901) describes two cases of tumor of the limbus (the first papilloma; the second carcinoma) following attacks of episcleritis. Tumors of the conjunctiva have been frequently found in cases subject to chronic conjunctivitis, but not as the result of episcleral inflammation. Their occurrence, in such circumstances, is in accordance with the tendency of new growths to appear in places which have been the site of simple inflammatory processes (carcinoma of the lip, tongue, larynx, oesophagus, scrotum, etc.). In the first case the tumor subsequently recurred and was then found to have undergone carcinomatous degeneration.

NEWS ITEMS.

PERSONALS AND ITEMS OF INTEREST SHOULD BE SENT TO DR. FRANK ALLPORT, 92 STATE ST., CHICAGO.

Dr. Schiotz will be professor at Christiana.

Dr. George Abelsdorff has taken up his residence in Berlin.

Professor Schweigger was 71 years of age the 29th of September last.

Dr. Leopold Javal has been made an officer of the Legion of Honor.

Dr. A. M. Berger, the well known oculist, died at Munich, April 17th, 1901.

Professor Axenfeld, of Rostock, will succeed Professor Manx at Freiburg.

Mrs. Harriet Bacon Smith has bequeathed $10,000 to the Brooklyn Eye and Ear Hospital.

Drs. Würdemann and Black have moved their offices to 105 Grand Avenue, Milwaukee, Wis.

Privat Docent, Professor Peters of Bonn, will go to Rostock in succession to Professor Axenfeld.

Mr. Charles H. Hayden, of Boston, has left by will $50,000 to the Massachusetts Eye and Ear Infirmary.

Dr. C. Zimmermann, of Milwaukee, has returned from Europe, where he spent several months in hospital work.

Dr. Frank L. Henderson, of St. Louis, sailed for Europe December 31st, on the Celtic. He will return in April.

Dr. C. M. Colver, of Albany, has been elected President of the Albany branch of the New York State Medical Association.

Dr. E. B. Heckel has been appointed associate professor in diseases of the eye and ear, at the Western University of Pennsylvania.

Dr. Leartus Connor, of Detriot, and Dr. A. A. Hubbell, of Buffalo, are this year's presidents of their respective state medical societies.

The medical staff at St. Francis Hospital, Peoria, Ill., has been reorganized. Dr. Edwin H. Bradley has been appointed Ophthalmic Surgeon.

The British Government is about to establish a bacteriologic laboratory in India under the charge of Dr. Haffkine. It will be located in Parcel.

An Ophthalmological Society was formed in Copenhagen in October of last year. Professor Bjerrum is president and Dr. Lundsgaard is secretary.

Dr. R. Boulet of the Ophthalmic Institute, Montreal, has been appointed director of the dispensary of the eye and ear department of the Hotel Dieu Hospital.

Dr. McCluney Radcliffe has been elected attending surgeon to Wills' Hospital, Philadelphia, to fill the vacancy caused by the resignation of Dr. John W. Croskey.

Dr. John L. Masters, of Indianapolis, Ind., Lecturer of Diseases of the Eye, Ear, Nose and Throat, in the Central College of Physicians and Surgeons, has resigned.

Wills Eye Hospital, of Philadelphia, under the control of the Board of City Trustees, is to have a change of management. Superintendent Richard H. Lytle having resigned.

At the annual election of the Ophthalmological Section of the New York Academy of Medicine, Dr. John E. Weeks was elected president and Dr. Henry H. Tyson secretary.

Dr. Nelson M. Black, of Milwaukee, has gone on a tour of the European clinics. He will visit London, Edinboro, Glasgow, Dublin, Paris, Berlin, Vienna, Moscow, St. Petersburg, Rome and other principal cities.

Dr. James Black, Dr. James S. Garrard, Dr. Samuel M. Miller and Dr. Robert P. Oppenheimer have been elected on the staff of the new City Hospital, of Knoxville, Tenn., to represent the Eye, Ear, Nose and Throat Department.

Professor de Lapersonne, who has succeeded Panas as professor of ophthalmology at the Hotel Dieu, delivered his first lecture on November 10th. Dr. de Lapersonne was dean of the Faculty of Lille until he was given this position.

Dr. Howard F. Hansell, of Philadelphia, has reported in *American Medicine* (Sept. 14, 1901) a case of anchylostomiasis, giving a description of the changes in the eye grounds. The report is very interesting and full, including a blood count.

On the 23d of July, 1901, Santos Fernandez, a distinguished ophthalmologist of Havana, was presented by the Medical Society of Cuba with a gold medal, commemorative of his services as president of the third Pan-American Medical Congress.

Dr. Samuel Theobald, of Baltimore, has described in the American Journal of Ophthalmology, a very admirable iridectomy scissors, with which, by the curve of the instrument, it is next to impossible to so excise a portion of the iris as to leave any part of the resulting coloboma edge engaged in the wound.

Dr. Casey Wood wishes to acknowledge the error he recently made at a meeting of the Chicago Ophthalmological Society in attributing to another the observation made many years ago by the principal American authority on this subject, Dr. Swan Burnett, of Washington, that the negro rarely or never acquired trachoma.

Dr. Adolf Alt, of St. Louis, has published a monograph, "Original Contributions Concerning the Glandular Structures Appertaining to the Human Eye and its Appendages," with 71 original photo-gravings. This book, as the author states, is the result of the author's long-continued researches in a still somewhat unknown field.

Dr. Alvin A. Hubbell, of Buffalo, has accepted a reappointment as ophthalmologist to the Buffalo Hospital of the Sisters of Charity, a position from which he resigned in 1898, after a service of fifteen years, in consequence of radical changes in management, to which none of the staff was willing to submit. The original system has been restored, however, and many of the old staff have returned to service.

Semi-Centennial of the Ophthalmoscope.—Helmhotz presented his ophthalmoscope to the Koenigsberg Medical Society November 13, 1851. The semi-centennial anniversary was celebrated at Berlin by a collection of historical exhibit of ophthalmoscopes in the ophthalmic clinic at the Charite, besides numerous meetings, etc., devoted to the subject. About 120 specimens were collected from various countries.

Dr. Savage's new book on ophthalmic myology will come from the press about February 1st. This book will be a systematic treatise on the ocular muscles. It will contain 500 pages and the price will be $3.50. Orders may be sent to Dr. Savage at Nashville, Tenn. Dr. Savage undoubtedly possesses a profound knowledge of the physiology and pathology of the ocular muscles equal to that of any man in the world, and this book should be, and doubtless will be, worthy of the perusal of any one taking an interest in ophthalmology. It will undoubtedly be a standard book upon this subject for years.

Miss E. F. Black, of Los Angeles, Cal., has invented an apparatus which enables blind persons to write with ease and satisfaction. It is the most unique invention of the sort in this country; it commends itself to any one who sees it, and is being highly recommended by the medical profession to those who are blind or have eye trouble. The operator can use either a fountain pen or pencil. It has an automatic spacing device which makes it impossible to write one line on another. This device also forms a hand rest, and a spring holds the pen or pencil on the line until the writer desires to make the lower loop letters, when, by pressing the spring down, the writer makes the loop and releases the pressure, when the pen is pushed into the proper place.

THE

OPHTHALMIC RECORD

A MONTHLY REVIEW OF THE PROGRESS
OF OPHTHALMOLOGY.

VOLUME XI. NO. 2. CHICAGO, FEBRUARY, 1902. NEW SERIES.

ORIGINAL ARTICLES.

A NEW USE OF PRISMS IN HETEROPHORIA.

BY F. PARK LEWIS, M. D.,

BUFFALO, N. Y.

So much has been written concerning muscular imbalance, its importance as an element in functional nervous disturbances, and the value of prism exercises or tenotomies, partial or complete, for its correction that one of the most simple and at the same time most effective measures for its relief has been singularly overlooked, or, at least, is not commonly employed, while at the same time there is no measure that has been so uniformly of value, and in which relief has been as speedily attained as by the one to be described.

Before considering this in detail, however, it may be promised that it is not by mere muscular strength that consensual ocular movements are accomplished. It is a daily experience with all ophthalmologists that within a comparatively short time the internal recti muscles may be made to accomplish twice or three times the amount of work in overcoming prisms that is developed by the initial effort. If, for example, the first trial shows that these muscles have a strength of ten prism degrees, in half an hour this may be increased to twenty and in an hour to thirty or forty degrees. This increase cannot, of course, be due to an actual development of these muscles in that short time, as muscular growth is necessarily the result of exercise extending through weeks of time.

That which has occurred therefore is psychic, and is the result of the voluntary direction of nervous energy toward a special set of muscles and the direction in which this energy is diverted is determined by the direction of the apex of the prism. This is demonstrated by the methods employed by those who consider that a small amount of manifest heterophoria may conceal a much larger amount that is latent.

If, for example, a preliminary test shows an esophoria of two degrees the use for half an hour of a two degree prism, applied with the apex in, may then show an excess of two degrees with the prism on, or of four degrees without a prism. This, if corrected, may soon be followed by six, and that later by eight or more. In other words, there has been an excess of nervous energy directed towards the interni, and the use of the prism has increased that effort until the largest amount possible has been produced. This is the reverse of the usual teaching, which is that the effort made by the externi to maintain a balance has been relieved and the actual tension of the interni has been made manifest.

Now, in order that we may know something of the condition of normal balance, we should know the average prism strength of the recti muscles. I think that the consensus of opinion will agree that the standard ordinarily given is much too high. In the experience of the writer the internal recti, in a condition of perfect comfort and freedom from eye strain, may vary within wide limits and may be anywhere between fifteen and sixty degrees.

But as the eyes when normal are always in a condition of convergence, the externi, which steady and govern the action of their stronger antagonists, are found to have an exceedingly narrow range for their activities, and it is unusual to find that when a proper equipoise is maintained they overcome under five or over seven prism degrees, instead of eight degrees, as ordinarily assumed.

The superior and inferior recti again, when the corresponding muscles are equally balanced cause no discomfort or other disagreeable effects when they overcome only one degree each, or they may be alike, normal with a sursumduction or deorsumduction of three or four degrees.

If, however, after careful and repeated tests it is found that the interni are relatively low as compared with the externi, overcoming perhaps from five to ten degrees, while the externi readily reach seven or over, and in almost every instance when the external measures nine or over whatever may be the strength of their antagonists one of two conclusions may be safely predicated—either that an excess of energy is directed to the externi, or that hyperphoria or cataphoria will be found to exist. If, again, one superior rectus has a prism strength of but one or two degrees, while the corresponding muscle has thre degrees or more, it is to the latter that the greater determination of energy is directed.

All organic changes are primarily functional, and if nervous energy be directed long enough toward any single muscle the blood supply is determined in that direction and its substance becomes better nourished, increased in size and structurally changed. If, on the other hand, nervous energy be diverted from that muscle the blood supply is diminished, it is less actively nourished and its substance decreased; it becomes again structurally changed.

Now, if it be a fact that in heterophoric conditions the temporary application of prisms with the apices toward the assumedly relatively stronger muscles *increases* the power of duction of that muscle the corollary naturally would be that a prism of not too high degree, with the apex toward the seemingly *weaker* muscle would in the same way increase *its* power of duction and produce a normal balance.

If, for example, the interni overcome thirty degrees of prism, while the externi are uncertain at three or four degrees, and a manifest esophoria is present of two or three degrees, the use of a prism of one degree before each eye, with the base out, would in a short time increase the adduction to thirty-two or more, while the esophoria would be doubled in amount. If, on the other hand, the same strength of prism be placed before the eyes, with *the base in,* in half an hour the esophoria will have disappeared and the externi will be found to have a prism strength of five degrees. If, as happens in the daily experience of the writer, the patient has been unable to use the eyes with any comfort whatever in the former case, in the latter the relief is immediate and apparent, and the eyes may be used consensually at short range with great comfort.

If, on the other hand, the externi have been disproportionately energized and the prism strength is nine degrees or more the use of weak prisms with the bases out will accomplish in half an hour what would take many weeks by the more cumbersome employment of a prism battery for daily exercise. Again, if there is a disparity in the superior straight muscles, a half degree prism, or one of one degree, as may be necessary, before each eye, *with the apex toward the muscle of least prism power* will restore the lost balance and give speedy relief. These prisms are worn as spectacles, or in combination with the focal correction, for days or weeks or months, as may be necessary; when the normal balance has been restored they may be discontinued permanently, or occasionally resumed, as conditions demand.

Not infrequently with muscular imbalance anisometrophia is found to coexist. Indeed, as the effort governing accommodation is associated with the muscular movements, it is entirely possible that the abnormal determination of energy toward a certain group of muscles is primarily dependent upon the organic defects in the eyes, and it is usually necessary to accurately correct the refraction before undertaking to restore the muscular balance; but, unfortunately, as all experienced ophthalmologists have discovered, the adjustment of right focal lenses is not always in itself sufficient to relieve the intense nervous strain from which the patient is suffering, and in some instances such glasses cannot be worn at all.

It then becomes necessary to employ, in connection with correction glasses, or independent of them, the prismatic combination described. This may be accomplished by means of the temporary use of fronts, or, if such lenses are to be worn for any protracted period, the prisms may be permanently ground on the focal lenses or used as spectacles or eye glasses alone. In strabismus in children with whom the refractive correction has not been sufficient to restore binocular vision, such a combination in some instances has been wholly effective in reestablishing parallelism of the visual axes. It is obvious, however, that in those cases in which the muscular tissue has become structurally changed and the muscle abnormally strengthened and enlarged, operative measures must be instituted.

In simple heterophoria conditions, however, the relief has been so marked when reversed prisms have been employed after the manner outlined that the less physiological method of graduated tenotomies has been almost wholly abandoned, and the writer's case book is filled with instances in which the results of this method of treatment have been gratifying, rapid, complete and permanent.

Cupiol, which is a nucleinate of copper, is strongly recommended by Mr. Simeon Snell as less irritating than the pure sulphate of copper crystal in the treatment of trachoma, etc.

OPERATIVE APHAKIA IN MALIGNANT MYOPIA.

BY DR. CHAS. H. BEARD,

CHICAGO.

In presenting Mrs. K., who has been so kind as to come here this evening, I wish to show this society a notable example of the beneficent results of removal of the crystalline lens for high grades of myopia. Mrs. K. first consulted me January 5th, 1892. She was then 27 years of age. For a number of years she had undergone treatment for trachoma. The disease now, however, had practically disappeared, leaving slight ptosis and, as a result of the prolonged vascular and ulcerative keratitis, very marked conicity of both corneas. The vision and refraction at that time were:

R. V. = $\frac{2}{200}$; $\frac{20}{100}$ w. — 20 D.
L. V. = $\frac{5}{200}$; $\frac{20}{100}$ w. — 15 s. — 3.5 cyl. ax. 135°.

Three days later, under atropin—

R. V. = $\frac{3}{200}$; $\frac{20}{70}$ — w. — 18 D.
L. V. = $\frac{5}{200}$; $\frac{20}{70}$ — w. — 15 s. — 3.5 cyl. ax. 135°.

The ophthalmoscope showed conii surrounding the discs, and some absorption of each choroid at its optic perforation. Prescribed lenses as per latter formula.

I next saw the patient November 14th, 1899. At this examination I found—

R. V. = $\frac{2}{200}$; $\frac{20}{70}$ — w. — 25 D.
L. V. = $\frac{3}{200}$; $\frac{20}{100}$ w. — 20 s. — 3.5 cyl. ax. 150°.

Advised Fukala's operation. At the end of one month—December 15th—a discission was made on the right eye. No special reaction followed, so, after one week, the operation was repeated, this time more effectually stirring up the lens substance. Dissolution at once began and was well under way when (January 23rd) an accidental blow over the eye was received, which caused a severe attack of iritis. I may add that the lady has for years been a sufferer from rheumatism. By vigorous treatment, both local and general, the inflammation would leave the eye only to return again after a few days, keeping this up until late in the ensuing May, since which time the eye has remained perfectly quiet. As early as March, 1900, the lens had entirely disappeared. (Please bear in mind that Mrs. K. was now 36 years of age.) On the 11th of the following October the first discission was made on the left eye. Here, too, the effect having been but slight, a second "needling" was made at the end of about seven days. After this, notwithstanding the patient's thirty-six years, the

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*Read at meeting of Chicago Ophthalmological Society.

crystalline went as quickly and effectually as I have ever seen it, even in case of a child. Early in the next January there was a clear, black pupil. Right after the disappearance of the lens from each eye the vision and refraction were tested with the following results:

R. V. (w. + 2 s. $\asymp$ — 5 cyl. ax. 120) = $\frac{20}{30}$.
L. V. (w. — 2 s. — 5 cyl. ax. 70°) = $\frac{20}{30}$.

During the past summer it was noticed that the acuity of vision had become reduced, from secondary cataracts. These were incised, after which sight was raised to $\frac{20}{20}$ — in both eyes. Along with the disappearance of the lenses there has been decided reduction in the corneal cones. The operations, each of which, by the way, consisted in making puncture with a Graefe knife through *base* of cornea and thence in the center of the lens, after the method of Pagenstecher, the prolonged bandaging, etc., doubtless had something to do with this, to say nothing of the adaptation of the eyes to the condition of aphakia. Of course, the myopia was, in a measure, due to the extension of the corneas.

Mrs. K. can read her newspaper without glasses; with the addition of a + 2 and a + 3 to her distance lenses she reads Jaeger No. 1, and—another new phase in her existence—she sometimes walks out of her house, forgetting her glasses, and goes down town without them.

The other case I have to show is one wherein a series of very large Wolf grafts, from the more delicate skin on the inner aspect of the upper arm, were successfully employed to relieve excessive ectropion of both lids of the right eye. Through a blastomycetic dermatitis the integument, not only of the lids, but for a distance of at least two inches in all directions around the orbit, as shown by the scar, had been destroyed.

Aconine acts as a powerful anæsthetic when subconjunctivally injected, though useless when this solution is simply instilled into the conjunctival sac.

A SECURE ADVANCEMENT OPERATION PERFORMED WITH THE AID OF A NEW TENDON TUCKER.

BY FRANK C. TODD, M. D.,

MINNEAPOLIS.

Professor of Clinical Ophthalmology and Otology, University of Minnesota, Etc.

Illustrated.

Instruments to aid in folding a tendon have been devised by Dr. Greene of Grand Rapids and Dr. Clark of Columbus.

The accompanying sketches illustrate the writer's tendon tucker. In Fig. 1, A shows the instrument before introduction and B when the prongs are separated by the set screw and C shows a side perspective. It will be seen that this instrument is so made that the bulk of the instrument extends down on the cheek, where it rests out of the way of the operator, further that one prong is introduced under the tendon when the prongs are crossed, but when the tuck has been taken the prongs are separated, as shown in Fig. 3, and so do not interfere with the introduction of sutures. At the ends of the prongs there is a smooth hook which prevents the tendon from slipping off during the operation. The instrument is universal, i. e., can be used on the external or internal rectus of either eye. The instrument is made by Chambers, Inskeep & Co.

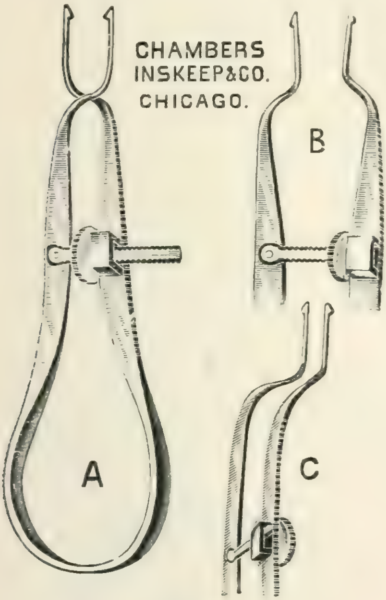

FIG. 1.

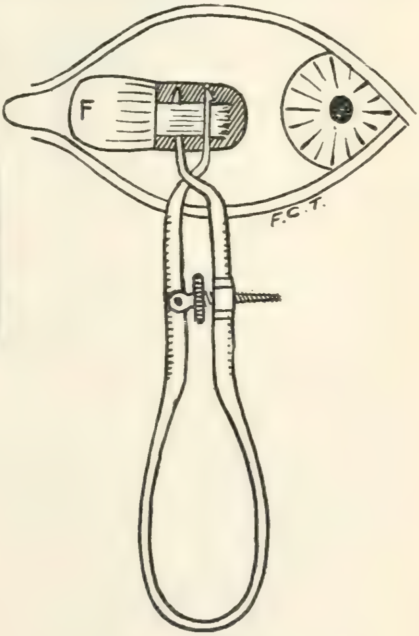

FIG. 2.

The operation performed by the writer is a combination of the ordinary tucking operation and the advancement operation of H. D. Noyes. The technic is as follows: Supposing the internal rectus was to be advanced. A flap of conjunctiva and Tenon's capsule is dissected up and turned back in such a manner as to freely expose the tendon (Fig. 2). The prongs of the tendon tucker being crossed (the one toward the internal canthus should cross above the other), the prong now toward the internal canthus is placed under the tendon, the nut is then turned on the screw until the prongs are separated enough to produce the desired effect (Fig. 3). The tuck having now been taken, cat-gut sutures are inserted through the three layers of tendon, one at the upper and one at the lower border. (Fig.

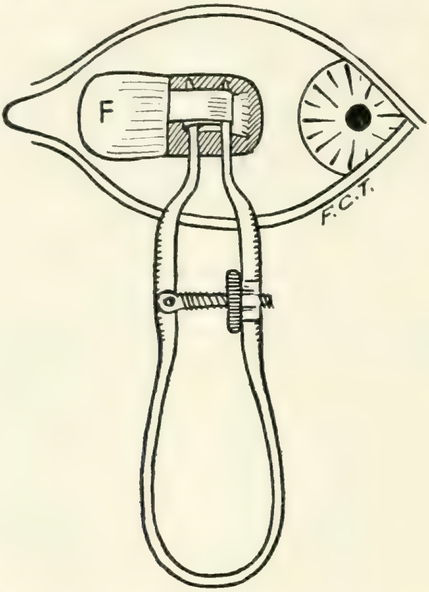

FIG. 3.

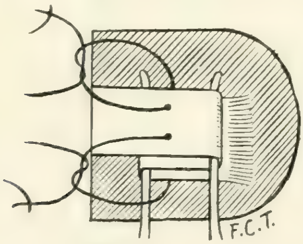

FIG. 4.

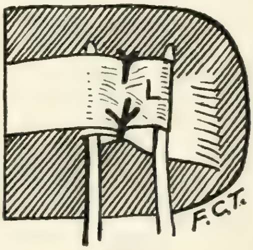

FIG. 5.

4.) These are tied, as is shown in Fig. 5. Then a double threaded black silk suture is passed through the loop (Fig. 5-L), in the tendon, from the under surface outward and then on through the conjunctival flap (F), from within outward as shown in Fig. 6. The needle at the other end of the suture is now buried under the conjunctiva below the cornea and into the episcleral tissues, coming out at G

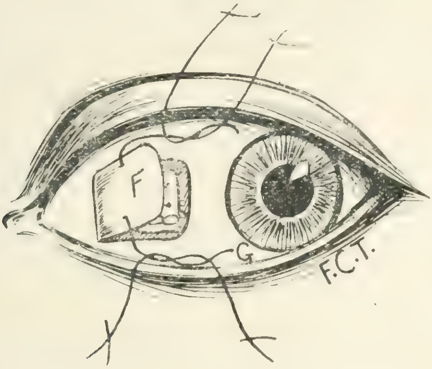

FIG. 8.

A like suture is inserted above, the instrument is removed, and each silk suture tied. These extra sutures act as guys to anchor the tendon while healing takes place, giving the operator a sense of security he does not always feel in advancement operations, and incidentally serve to fasten the conjunctival flap.

Functional Amblyopia.—The conclusions of Pearse are: Our knowledge of the manifold manifestations of the disease, hysteria, in every structure of the body will not permit us to say positively that the retinal elements, the conducting channels of visual sensation, or the visual centers themselves, are free from the influence of this disease. The effect upon the visual apparatus of fright, shock, emotion, mental exhaustion, overexertion, etc., is essentially the same as in hysteria, and whether the sympathetic is concerned in this action is yet a question. In view of the known sphere of action of the sympathetic and of the many cases observed which present the same conditions in the vessels of the fundus which the influence of the sympathetic produced elsewhere in the body, if the sympathetic does not influence the fundus vessels, what does? Until a more plausible source of influence is positively demonstrated, we cannot do better than accept this explanation, which is far removed from a theory.

RELAPSING TRAUMATIC BULLOUS KERATITIS, WITH CASES.

BY G. E. DE SCHWEINITZ, A. M., M. D.,

OF PHILADELPHIA.

Paper read before the Ophthalmic Section of the College of Physicians of Philadelphia, Oct. 15, 1901.

At longer or shorter periods after the apparent healing of trivial corneal abrasions, the affected eye may become the seat of irritative phenomena quite out of proportion to the original injury. These phenomena may appear in the form of

1. Relapsing bullous (or vesicular) keratitis, originally described by Hansen Grut[1] in 1872.
2. Recurring erosions of the cornea, first recorded by Von Arlt in 1875[2].
3. Recidivating traumatic keratalgia,[3] a name given to the affection in 1888 by Grandclément[4], who believed that it had not previously been described.

These manifestations represent analogous if not identical lesions. In general terms the symptoms are the following: Some time, several weeks or several months, after an abrasion of the cornea by a finger nail, a twig, or similar object, the patient experiences, almost always on awakening in the morning, some difficulty in opening the eye, followed, when the lid is raised, by marked foreign-body-sensation, decided epiphora, flushing of the eyeball and sharp neuralgic pain. Each movement of the lid is painful, and the "attack" continues from one-half to several hours, when, usually by afternoon, the symptoms subside and the eye is again apparently normal. These attacks may recur at short or long intervals, for weeks, months and even years. Careful examination during the continuance of the irritative signs just described will reveal on the cornea a small ruptured vesicle, or a larger blister or bulla, or sometimes simply an erosion of the superficial epithelium without indications of vesicle or bulla. Occasionally the only lesion to be detected is the scar or macula caused by the original injury, without loss of epithelium.

During the last three years several important communications have appeared upon this subject, in which the literature is fully reviewed, by Jensen[1], von Schroeder[2], Praun[3], and Stood[4], and this need not, therefore, be further discussed. All these authors refer to the meagre accounts of this troublesome affection which appear only in a few text-books, most of which pass it by in silence, and to its somewhat infrequent occurrence.

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[1] Hospital-tidende, 1872, No. 51, and Congrés International, Copenhague, 1884, quoted by Jensen, Archives d'Ophtalmologie, 18, 1898, p. 229.

[2] Ueber die Verletzungen des Auges, Wien, 1875.

[3] This affection has also been called finger nail keratitis and cicatrix dolorosa.

[4] Progres médical, Mai 12, 1888, and Semaine mèdicale, May 6, 1888.

Stood has met with the condition 60 times among 40,000 patients, and Jensen 37 times among 50,000 patients examined during eleven years. I have not examined the records of my public services for statistical information on this point, but among nearly 12,000 private patients I have encountered three cases with present certain features that seem to render their brief record worthy in this connection.

Case 1. *Recurring erosion of the cornea preceded by vesicle formation, the result of a slight abrasion.*—On the 25th of September, 1888, a married woman, aged about thirty, came with the following history: One month before the date named she began to experience at intervals attacks of inflammation of the left eye, which lasted for a few hours, then disappeared, only to recur again and again. Some weeks prior to her first corneal attack, on August 30th, the affected eye had been switched by a horse's tail. No attention had been paid to this slight accident, and its effects had apparently entirely passed away and the incident had been forgotten until the ocular discomforts just described began. On examination a small almost exactly central superficial abrasion was visible, with a slight ciliary injection at the outer side.

The treatment consisted of atropine drops, boric acid solution and yellow oxide salve, but after a number of recurrences during the following two months, always preceded by the formation of a small vesicle at the area of original injury described, which broke down and was followed by irritative phenomena and sharp neuralgic pain, these mild measures were discontinued and the spot was touched with the actual cautery. For a time the cure seemed complete; when one month later a small bleb appeared, and the erosion with the usual symptoms followed. The treatment from now on consisted of the internal administration of arsenic and frequent massage, first with calomel ointment and later with yellow oxide salve. The attacks became less frequent, but continued until the following June, when after two severe explosions of neuralgia the blebs stopped forming and the eye become permanently quiet. The duration of the whole process was about eight months. A very slight corneal scar remained, but in spite of this, after the correction of the astigmatism, vision became normal in each eye.

This eye never gave the patient the slightest trouble until twelve years later, when an erosion appeard, without apparent cause, just on the edge of the slight macule which remained from the primary injury, which lasted nearly six weeks. Cure was finally secured by three thorough applications of the tincture of iodine.

Case 2. Recurring erosions of the cornea the probable result of a finger-nail scratch; no preceding vesicle formation detected.—A married woman, aged twenty-eight, came for consultation on the 13th of September, 1899, with the following history: For six months prior to her visit, at intervals of never less than a month, always in the early morning, the left eye had suffered with intense pain, which had always been diagnosticated as ciliary neuralgia, and which had been attributed to eye-strain. The eye became red and watery, but after the attack had passed away, which it did in a few hours, the eyeball and lids assumed an entirely normal appearance. The woman was in indifferent health and had been subjected to much worry. She was nursing an infant, and although it was not positively determined, it is practically certain that some time prior to her first attack of keratalgia the sharp nail of the baby's finger had scratched her eye.

When examined, the vision of each eye was normal after the correction of three quarters of a dioptre of hypermetropic astigmatism. The ophthalmoscopic examination revealed no abnormalities, nor was the slightest alteration detected at that time on the corneal surface. Three days after her first visit an "attack" occurred and she came at once to the office. A drop of fluorescine was instilled and a small erosion, looking like an irregular scratch, was visible in the upper portion of the cornea. During one month the patient was under observation and suffered three typical attacks. The erosion was always easily detected by means of the fluorescine test, but a vesicle was never discovered.

The treatment consisted of the ordinary antiseptic lotions, and one application of a 2 per cent solution of nitrate of silver and several applications of a 2 per cent solution of holocain to the abrasion. The patient then left the city, and as her husband was a doctor he was given a solution of holocain with instructions how to use it. Six weeks later he wrote, stating that no attack had occurred until that date, when there was a typical reappearance of the keratalgia with the erosion, which was at once relieved by the holocain. Since then no word has come from this patient, but I feel sure that had there been a recurrence of the attacks notification would have been forwarded. During the six months prior to her visit to my office all manner of treatment had been prescribed for what was supposed to be a ciliary neuralgia, but no one seems to have suspected the true nature of the case.

Case 3. Relapsing bullous keratitis, probably of traumatic origin.—A man, aged thirty-five, came for consultation on the 29th of July, 1901, and gave the following history: He had always been myopic and for years had believed his left eye to be so myopic and so poor sighted that the right one was used exclusively. He was wearing the following correction:

$$\text{O. D.} - 8 \bigcirc + \overset{c}{1.50} \ \text{axis } 180, \tfrac{6}{12}.$$

$$\text{O. S.} - 12 \bigcirc \overset{c}{-} 1. \ \text{axis } 180, \tfrac{6}{40}.$$

The patient's general health was perfectly good, his business was that of a merchant tailor, and he was actively employed as a bookkeeper in his own establishment. Ophthalmoscopic examination revealed the usual appearances in high myopia, that is, posterior staphyloma and rarefaction of the choroid. There was a good deal of mottling of this membrane in the macular region of the left eye, with some spots and small masses of pigment heaping.

For six weeks or more prior to his visit he had on numerous occasions, always early in the morning, awakened with a feeling as if there was a cinder in the right eye and as if the lids were glued to the ball so that he opened them with difficulty, and with what he described as a "filmy feeling," and with a certain amount of neuralgic pain in the supra- and infra-orbital region.

All manner of treatment had been utilized for his relief,—antiseptic lotions, astringent applications to the lid, internal remedies and even epilation of the lashes with the belief that some of these might have been incurved and caused the irritation. The doctor in attendance wrote me that he finally made up his mind that he was dealing with a neurosis of some character.

Suspecting the nature of the case, a most careful examination was made of the cornea without finding any positive lesion except a minute grayish spot just above the upper pupil border of the right eye, such a spot as one often sees after a cinder has been removed from the eye. The patient, however, was not sure that he had sustained any injury, although of course he was equally not sure that he had not at some time or other prior to his attacks of irritation and neuralgia, had an imbedded foreign body in the cornea.

The patient's refraction was fully corrected, with the following result:

c
O. D. — 7 ○ — 2.75 axis 75, $\frac{6}{10}$.
c
O. S. — 15 ○ — 2.25 axis 165, $\frac{6}{12}$.

This glass was ordered, and after it had been worn for about a week he could easily read $\frac{6}{9}$ with the right eye and $\frac{6}{9}$ partially with the left. During this time he took small doses of the biniodide of mercury.

Ten days later he appeared in my office with the statement that he had had two slight attacks of his foreign body sensation, one on that morning. The cornea was carefully examined and a minute black speck found in the neighborhood of the previously named small grayish infiltration. This was removed and the patient dismissed. At the end of six days the patient again reported that he had awakened on that morning with by far the sharpest attack that he had yet experienced of his corneal irritation and ciliary neuralgia. The eye was injected, but not more than it had been on any previous examination; a moderate amount of conjunctival catarrh was always present. At the point of slight infiltration previously mentioned there was a little grayish haze, and careful examination showed that the entire center of the cornea was occupied with a large bleb which had not yet broken and which looked exactly like a water blister, in other words, there was a typical bulla of the cornea.

The nature of the case was now clear, the bleb was punctured, the collapsed walls removed, the eye sterilized as carefully as possible, bandaged, and the next day, as there was some increase in the infiltration at the upper edge of the lesion, the patient was admitted to a private room in the hospital.

The treatment consisted of the instillation of scopolamine, frequent irrigations with boric acid solution and the internal administration first of salicylate of sodium and later of quinine and arsenic. In forty-eight hours the epithelium of the denuded area was renewed, with the exception of a small sickle-shaped area above, which was slightly grooved and the edges of which were infiltrated and which stained deeply with fluorescine. This ulcer was curetted and touched three times with iodine. Healing was uneventful, and the patient left the hospital on the 30th of the month, and since that date to the present time has had absolutely no return of his discomforts. When his vision was last tested, a month ago, it was $\frac{6}{12}$ in the right eye and $\frac{6}{9}$ in the left, and the slight corneal macula was yielding to massage with the yellow oxide of mercury.

During his stay in the hospital, that is, from the 18th of August until the 30th of the same month, the patient experienced a number of neuralgic attacks but slightly accompanied with the foreign-body sensation. These attacks, of which there were eight, almost invariably began at three o'clock in the morning, lasted for about fifteen or twenty minutes, and recurred again between five and six of the same morning, that is to say, when the patient was awakened. The pain was always in one of three situations, directly in the supraorbital notch, in the forehead above the notch, or in the infraorbital region. A few of the attacks occurred early in the evening, that is, between 9 and 9:45, and on these occasions the second attack appeared later in the morning, that is, from 7:30 to 7:45. The attacks were always speedily controlled by hot compresses and the administration of caffein and antefebrin. During the time of the neuralgia there was a slight febrile manifestation, at night the temperature usually being between 99 and 100, once rising almost to 101, while in the morning it touched the normal line. Malaria was excluded.

It will be seen that these cases typify the three manifestations of this affection which I have briefly outlined, namely, traumatic bullous keratitis with many relapses; typical relapsing erosion, preceded by vesicle formation; and characteristic relapsing erosion without demonstrable vesicle formation, the vesicle in all probability having disappeared on each occasion before the patient presented herself for examination.

It is not necessary to dwell upon the somewhat obscure nature of these cases and how readily they may be mistaken for some other affection. As to the treatment, it has not differed from that which has been recommended by all authors who have written upon this subject, namely, some form of cauterization of the erosion, massage with the yellow oxide of mercury and during the proper stage an occlusive bandage, except in one particular, namely, the apparent value of holocain in one case. Certainly it would seem to be a useful drug to alleviate the irritation, and if what we know of its value in other forms of corneal ulceration is remembered, a useful application, as it proved in my case, directly to the affected area. One of the cases demonstrates, as Jensen points out, that although the cornea usually clears up entirely, it may become infected and a corneal ulcer develop. Indeed, on a few occasions, the infection has been sufficiently great to produce iritis and hypopyon.

With regard to the pathology of this affection, as Praun states, Fuchs makes the plausible explanation that the epithelium over the original spot of injury is not regenerated in a normal manner, so that if the occasion arises it can be readily lifted up from its position, probably in the form of a bleb or vesicle, which collapses, and when the patient is examined the erosion alone is visible.

Stood, who has gone into the matter with a great deal of care, comes to the conclusion that a theory advanced by Grandclement and others that the pain depends upon a neuritis of the finest nerve endings in the corneal epithelium, associated with trophic disturbances, is not correct. He wishes to find the explanation of these phenomena in the anatomical condition of the deepest cylindrical epithelial layer, which is attached by minute tooth-like processes in the furrows of the fibrilla of the anterior elastic lamina, and by this means has an intimate relationship with this tissue. Owing to the injury a certain extent of the epithelium is torn away from its attachments and the anterior portion of Bowman's membrane is probably bruised, so that the new-formed epithelial cells which spring forward at the borders of the defect are unable to form the normal attachment to the underlying tissues. During the night the conjunctiva of the closed lid comes in contact with this epithelium, and when the lid is opened the poorly detached epithelium is torn away and the fine nerve endings are broken. Following this a transudation from the parenchyma of the cornea finds its way through the pores of the lamina elestica which represent the nerve canals, and this produces the bleb-like formation.

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[1] Archives d'Ophtalmologie, 18, 1898, p. 229.

[2] Mittheilungen aus der St. Petersburger Augen-Heilanstalt, Heft V, 1898 p. 26.

[3] Die Verletzungen des Auges, Wiesbaden, 1899, p. 167.

[4] Archiv. f. Augenheilkunde, Bd. XLIII, Heft 4, 1901, p. 220.

OCULAR PARALYSIS.

BY M. F. WEYMANN, M. D.,
ST. JOSEPH, MO.

A Reply to Dr. Duane's Article in The Ophthalmic Record for Dec., 1901.

Dr. Duane's contribution naturally divides itself into two parts, viz.:

(1) A few expressions of criticism.

(2) A presentation of the subject according to his own way.

With regard to the criticism, I have to start in with a complaint, namely, that Dr. D. did not show me the courtesy of thoroughly reading and digesting my statements. The heading *plainly* says that my rules are valuable only in *single* ocular paralysis, which, in a manner, also excludes complications. But admitting that high degrees of insufficiency *might* interfere with the workings of Rule III., we still have to concede that the causes of ocular paralysis do not particularly seek out heterophoric subjects. Hence, the exceptions thus created would, in any case, be only few in number.

However, I do not *admit* that confusing evidence from Rule III. should invalidate the whole scheme, for it is the evidence of all of them taken *conjointly* that should lead us to a diagnosis whenever possible. In fact, I will show by reproducing Dr. D.'s table, with parenthetic marking, that all his statements are merely individual applications of my rules.

Rules as formulated by me (Oct. Record, 1901):

Rule I.:

Diplopia appears in the field of action of the paretic muscle.

Rule II.:

The *advancing* image belongs to the paretic eye.

Rule III.:

Paresis of any obliquus or external rectus produces homonymous, any other muscle heteronymous (crossed) diplopia.

Table of Diplopia in Paralysis.—Dr. Duane, Dec. Record, 1901.

A. There is a *lateral* (i. e., an homonymous or crossed) diplopia which increases markedly as eyes are carried laterally (to right or left). A LATERALLY-ACTING muscle is paralyzed. (I.)

(a) Diplopia increases in looking to the *right* (= paralysis of a RIGHT-TURNER. (I.)

Diplopia homonymous: Paralysis of *R. externus.* (III.)

Diplopia crossed: Paralysis of *L. internus.* (III.)

(b) Diplopia increases in looking to the *left* (= *paralysis* of a LEFT-TURNER.) (I.)

Diplopia crossed: Paralysis of *R. internus.* (III.)

Diplopia homonymous: Paralysis of *L. externus.* (III.)

B. There is a *vertical* diplopia which increases in looking *up.* An ELEVATOR is paralyzed. (I.)

(a) Vertical diplopia increases in looking *up and to the right* (= paralysis of a RIGHT-HAND ELEVATOR.) (I.)

Diplopia left (i. e., image of right eye above): Paralysis of *L. inferior oblique.* (II.)

Diplopia right (i. e., image of left eye above): Paralysis of *L. inferior oblique.*) (II.)

(b) Vertical diplopia increases in looking *up and to the left* (= paralysis of a LEFT-HAND ELEVATOR.) (I.)

Diplopia left (i. e., image of right eye above): Paralysis of *R. inferior oblique.* (II.)

Diplopia right (i. e., image of left eye above): Paralysis of *L. superior rectus.* (II.)

C. There is a *vertical* diplopia which increases in looking *down.* A DEPRESSOR is paralyzed. (I.)

(a) Vertical diplopia increases in looking *down and to the right* (= paralysis of a RIGHT-HAND DEPRESSOR. (I.)

Diplopia right (i. e., image of right eye below): Paralysis of *R. inferior rectus.* (II.)

Diplopia left (i. e., image of left eye below): Paralysis of *L. superior oblique.* (II.)

(b) Vertical diplopia increases in looking *down and to the left* (= paralysis of a LEFT-HAND DEPRESSOR.) (I.)

Diplopia right (i. e., image of right eye below): Paralysis of *R. superior oblique.* (II.)

Diplopia left (i. e., image of left eye below): Paralysis of *L. inferior rectus.* (II.)

In connection with the above, Dr. Duane is remarkably inconsistent with the term diplopia. Since the double-sight is due to the non-fusion of the images of the two eyes, monocular diplopia does not exist; hence it is grossly incorrect to refer to the diplopia as being "right" or "left," as each eye sees single. However, since the paretic eye *produces* double sight, usage has somewhat sanctioned the use of the term "diplopia" in connection with the paretic eye. Now, Dr. D. speaks of diplopia of the unaffected organ under "B," but under "C" he arbitrarily changes by referring to the diplopia in the ailing eye. This is a most confusing practice, especially with beginners.

The Roman numerals refer to my rules as they cover the various portions of the table.

Of the "inadequacy" of Rule III. *when applied singly* in cases of excessive degrees of complicating insufficiency I was well aware, still the circumstance that all vertically acting muscles have, owing to their direction and implantation upon the eye-ball, a triple function makes the subject nauseous to many practitioners by reason of the multiplicity of data, even though they be ever so easy, taken individually. By taking up Rule III., considerations of this kind could be entirely dispensed with for a simple mechanical analysis, and it is just here where I expected the profession to look for the merits, if there be any, of my rules.

In case, however, "complicated" single paralysis puts in its rare appearance, the complications will be promptly pointed out by the contradictory evidence of Rules I. and III.

The question naturally arises as to the value of my rules, since they apply to *single* paralysis only.

The inter-relation of the muscular action of the extrinsic muscles of the eyeball is so close that paretic disturbances affect also, in a measure, the action of a healthy synergist and opponent. This fact often makes a diagnosis in all details a matter of long and difficult analysis and, in some cases, an absolute impossibility. Dr. D. says, with almost youthful enthusiasm:

"If these questions are answered, the diagnosis may readily be made from the statements just presented or from the following table, in which the same principles are more succinctly set forth."

If his meaning is as categorical as the words seem to indicate, I beg to differ from his views. Even that master-analyst, Panas (Paris), used to say: "But there are cases, gentlemen, where no one can make a *certain* diagnosis." It is not, perhaps, impossible to arrive at a diagnostic opinion which, to the maker, may seem as reliable as gospel truth, but yet the evidence may not be convincing to anybody else. Such a diagnosis is more a matter of personal faith than scientific analysis. Fortunately, such cases are not frequent. The fact remains that abducens paralysis is by far the commonest form; next in frequency comes the superior oblique (patheticus) and, after it, ophthalmoplegia externa (oculo-motor).

The latter is so characteristic that it is easily recognized, hence, with the exception of the rarer multiple paralysis, my rules will cover the largest part of this diagnostic work.

Dr. D.'s table presupposes a constant taking into account of the complex action of the individual muscles which he, therefore, recites seriatim as a memory burden. I am surprised that, with his numerous words, he did not find it worth while to aid the memory by giving the anatomical reasons for these complicated movements and, with them, an intelligent understanding. With these, and a clear idea as to the inverse nature of retinal stimulation and visual projection, one can reconstruct the rules if the memory should fail.

The "additional facts" on pp. 624 and 625 might better have been omitted, since they are chiefly reiteration and corrollaries without their pointed-out connection. To the student they are confusing, to the adept superfluous.

I wish to add that I first published these rules, practically, in the present shape, some ten years ago. The Record then contained them, and an abstract appeared in the *Klinische Monatsschrift f. Augenheilkunde.* During a discussion of this subject (paper by Dr. Starkey of Chicago) at the last meeting of the A. M. A. I brought up the rules, but as the reports were so inaccurate, I published them again in The Record.

In conclusion I desire to state that I cannot recognize Dr. D.'s table of explanations as having any bearing on my efforts, because they are in entirely different directions. *My* aim was to condense facts well known into a few rules and to reduce calculations confusing on account of their multiplicity, to a simple mechanical basis; *his* presentation is a rehearsal of a number of anatomic, physiologic, and diagnostic facts to be found in most text-books and especially complete and in lucid style in the work of Prof. Fuchs.

I am sorry to have made so many words, but, for my part, this will be final.

THE "CROSSED CYLINDER" IN THE DETERMINATION OF THE REFRACTION.

BY E. C. ELLETT, M. D.,
MEMPHIS, TENN.

The object of this communication is to correct a mistake under which some, at least, of the users of Dr. Edward Jackson's "crossed cylinder" labor.

In THE OPHTHALMIC RECORD for April, 1900, Dr. T. E. Schneideman writes of this subject, and takes as an example an eye having before it the following combination: +2.25 sp. ⊃ + .50 cy. ax. 90° He says "(a) with the plus axis of the crossed cylinder parallel to the axis of the trial cylinder (+.50) we have 2. sp. ⊃ + .75 cy. ax. 90°, and (b) with the plus axis of the crossed cylinder at right angle to the axis of the trial cylinder, +2.50 sp. ⊃ +.25 cy. ax. 90°." This is a mistake which can be easily shown. The combination before the eye gives the following, expressed diagrammatically:

+2.25

——+2.75

If, now, the crossed cylinder, (+ cy. .25 ⊃ — .25 cy. axes at right angles) is placed before this combination with its plus axis parallel to the plus axis of the trial cylinder, we have the following:

+2.25—25 (+2.00)

—— + 2.75 + .25 (+3.00)

or + 2. sp ⊃ + 1.00 cy ax 90°, and not + 2 sp ⊃ + .75 cy ax 90°, as stated by Dr. Schneideman. If the plus axis of the crossed cylinder is placed at right angles to the plus axis of the trial cylinder we have the following

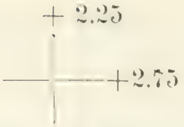
+2.25+25 (+ 2.50)

— + 2.75 +.25 (+ 2.50)

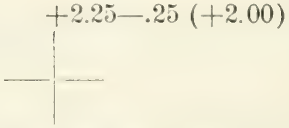
or + 2.50 sp. and not + 2.50 sp +⊃ .25 cy ax 90°

In order to attain the result which he desires it is necessary to use a simple cylinder + .25 or — .25, with axis placed either parallel to or at right angles to the axis of the trial cylinder.

Thus:

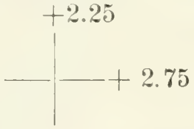


Now place the — .25 cy. in front of this with axis 180 and we have

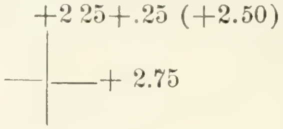


or + 2.00 sp. ⊃ + .75 cy. ax 90°, which is the correction Dr. Schneidemann says is obtained in example (a).

Again:



Now place the +.25 cy. in front of this, axis 180° and we have



or +2.50 sp ⊂ +. 25 cy. ax. 90°

In other words, by the use of plus and minus .25 sph. and plus and minus .25 cy. we can make the following changes in this example:

(a) Increase the spherical by .25 (+ .25 sp.).

(b) Decrease the spherical by .25 (— .25 sp.).

(c) Increase the cylinder by .25 (+ .25 cy. axis parallel to the axis of the trial cylinder).

(d) Decrease the cylinder by .25 (— .25 cy. axis parallel to the axis of the trial cylinder).

(e) Simultaneously increase the spherical .25 and decrease the cylinder .25 (by + .25 cy. axis at right angles to the axis of the trial cylinder).

(f) Simultaneously decrease the spherical .25 and increase the cylinder .25 (by — .25 cy. axis at right angles to the axis of the trial cylinder).

This is not exactly the point raised by Dr. Dunn in THE OPHTHALMIC RECORD for June, 1900. In the August RECORD for the same year, Dr. Jackson adds a note to Dr. Schneideman's reply to Dr. Dunn, and says: "The crossed cylinder indicates definitely whether a stronger or weaker cylinder is needed." This it undoubtedly does, but it does not make the change that some of its users, Dr. Schneideman among them, think it does. Simple spheres of .50D and .25D, and simple cylinders, .50D and. .25D, used in the manner I have indicated, seem to me to give the full range of changes necessary to determine the accurate refraction of the eye. Of course this applies to the tests made under a cycloplegic, as I think the majority of ophthalmologists agree that accurate correction of refraction cannot be made otherwise, and tests for approximate and manifest corrections do not permit of such niceties.

This is not written in a spirit of "carping criticism," but to correct a misapprehension concerning the use of this test.

Randolph Building.

AN UNUSUAL RESULT IN A CASE OF IRITIS.

E. J. GARDINER, M. D.,
CHICAGO.

Illustrated.

It is so seldom that an iritis renders a decided benefit to an eye that the following case in which it proved, at least temporarily, "a blessing in disguise" is, I think, worthy of publication.

Mrs. M. J. W. consulted me in 1887. She had double senile cataract. The right was mature; the left, although immature, was sufficiently advanced to render her vision very poor. I extracted the right and, after an uneventful recovery, discharged her with $\frac{20}{40}$ — with + 12 D., and reading Jaeger No. 2 at 12 inches with + 18 D.

On the 14th of November of this year (1901) she presented herself at my office, giving the following history:

In April she was seized with intense pain in the left eye. The local physician diagnosed it as facial neuralgia, and treated her with hot fomentations and internal medication. The eye was so red that it "was blacky" (sic), and was entirely closed for three days. The pain, which was of the most violent character, was located in the eye, the brow and in the cheek, and became much more intense at night, when there was profuse lachrymation. This condition of things lasted for six weeks. The pain then subsided and the eye gradually returned to its usual condition. About three weeks after the subsidence of all inflammatory symptoms, while looking at a lighted lamp, she was much astonished to discover that she could see the flame with her left eye, and this discovery brought her to my office in search of an explanation. Examination revealed the following interesting condition:

Read before the Chicago Ophthalmological Society, December, 1901.

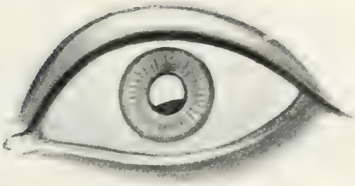
Right Eye.—Operated 14 years ago, in good condition; slight capsular cataract, with + 12 D. v. $\frac{20}{40}$. Reads Jaeger No. 2 at 12. with + 18 D.

Left Eye.—Apparently normal; no pericorneal injection; cornea clear; pupil moderately dilated. The iris is normal, except about two millimeters of the lower margin, where it presents the characteristic serrated appearance of posterior synechiae. The ophthalmoscope reveals a perfectly clear pupil, except at the lower portion, where the superior margin of the cataractous lens can be plainly seen, rising about one millimeter above the margin of the iris, to which it is attached by four broad synechiae. These synechiae are in a straight line, in the form of a secant, and are located one millimeter from the top of the arch. The lens is tilted forward slightly and remains in situ, when the eye is moved rapidly. There is no pain, no discomfort, and I could detect no tenderness on palpation. T N Vision with + 12 D. is $\frac{20}{30}$, and Jaeger No. 2 is read with ease at 12 inches with + 18 D.

With a clear explanation of condition and of the danger inherent thereto, and explicit instructions what to do in case the eye should give any trouble, the patient departed, perfectly satisfied with the gain of sight in an eye hitherto blind and useless.

The *modus operandi* of this automatic-couching iritis is to me rather interesting. Persistent cross questioning failed to bring out any evidence that the lens had dropped before the inflammatory symptoms appeared. The patient is a very intelligent woman, and she assured me that previous to the time stated she could only see diffused light, and that when the eye began to give her trouble she tested it, fearing that it might be "the optic nerve," and that she would lose her perception of light.

Dislocation of the lens from iritic attachments is not a very common occurrence. The attachments are found at the center of the capsule and the lens is drawn more or less out of place, but in this case the synechiae are situated one millimeter from the upper edge of the lens. How the pupillary border reached and became adherent there is a matter for speculation. The most plausible explanation is that during the period of severe inflammation the lens became dislocated downward. The pupil must have been very much contracted, no mydriatic having been instilled. The iris became adherent to the capsule, and when the inflammation subsided and the pupil expanded, the lens was drawn further downward into the position in which I found it, and which I have endeavored to illustrate in the sketch now before you.



THE
OPHTHALMIC RECORD
A MONTHLY REVIEW OF THE PROGRESS
OF OPHTHALMOLOGY.

Volume XI, No. 2. CHICAGO, FEBRUARY, 1902. New Series.

EDITORIAL.

THE VALUE OF EYE SIGHT.

One of the live questions under discussion at present in medical and in legal circles is the Economic Valuation of Vision. This question has been brought forcibly to my mind within a few days, not only by the results of the ordinary run of ocular accidents, but from the occurrence of several suicides, the cause of which was, in each case, alleged to be the preference of death to blindness. One of these occurred in a workman of Italian descent in Racine, Wis., and two others in Vienna, Austria, one being a Hungarian woman and the other an Austrian judge; the latter one of the most prominent members of the high court of Austria. The three cases being typical of several classes. On account of the great danger of mental depression with suicidal tendency, it behooves us to be "guarded" in our opinions given directly to patients as to prospects of total blindness.

The United States Bureau of Pensions allows full disability for the loss of both eyes. Most of the accident insurance companies allow full annuities or the full amount or death limit of the policy. The German insurance office allows full disability. In suits for damages claimed and allowed in the United States greater amounts are given for complete blindness resulting from accident than for the loss of life; hence, it is a general accepted fact that eye sight is of more value than life itself. Accidents to the eyes incurring subsequent loss of vision ranging from complete disability to those of comparatively trivial nature have certainly an influence upon the earning ability of the individual, and in the several books and essays written by Magnus, Helmholtz, Haddeus and other German writers and by Hansell & Würdemann in America, the above facts are plainly stated.

On account of the advanced state of ophthalmic science, whereby the different relative value of the various visual factors or damage thereof may be scientifically ascertained, it is certain that the actual percentage of loss to the earning ability and its monetary valuation can be scientifically estimated. We know from experience and the results of empirical observation, that certain degrees of loss of vision produce certain amounts of loss to the earning capacity of the individual, and we believe that this may be likewise scientifically calculated and the probable loss of wages thereby estimated from the percentage of the visual loss in any one or all of its factors, in the case of trades and professions for which sight is necessary. It is safe to predict that rulings upon this point will shortly be obtained in the courts at law.

To Aid the Blind.—The Board of Charity of Washington, D. C., has recommended to the District Commissioners that the Aid Association for the Blind be allowed compensation at the rate of $10 per month for blind persons. The board recommends that the compensation be made from the appropriation for the relief of the poor.

At a recent meeting of the St. Joseph's County Medical Society, of Indiana, held at South Bend, an interesting paper was read by Dr. E. J. Lent, of South Bend, on "Injuries to the Eyeball and Its Appendages." The paper was discussed by Dr. K. K. Wheelock, of Ft. Wayne, and Dr. F. M. Sawyer, of South Bend.

REVIEW OF PROGRESS OF OPHTHALMOLOGY.

OCULAR AFFECTIONS IN RELATION TO GENERAL DISEASES.

BY E. C. ELLETT, M. D.,
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Ocular affections bear so close a relation to general diseases that we are constantly reminded that we are, or should be, physicians first and then ophthalmologists. A review of the literature for the past year furnishes abundant evidence of a lively appreciation of this fact. So numerous have been the contributions to this field that it is possible to mention only a few of them, and somewhat categorically.

Malaria.—Besides the well known subjects of neuralgia (Ollowsky, *Vratsch* No. 39, 1901) and dendritic keratitis (Leprince, *Annales d' Oculistique,* May, 1901) there were two contributions to malaria as a cause of cataract. Kraisky (*West. Ophthal.,* Nov. and Dec., 1900) observed four cases in children who had chronic malaria, preceding which the eyes were healthy. In not having a chronic uveitis they differed from Inouye's patient (*Die Ophth. Klinik,* June 5, 1900), a man, aged 25, who had chronic uveitis and cataract, due to chronic malaria. Extraction was followed by a partial success. Bagot had previously reported two cases in children. This cause is doubtless more often operative in malarial districts than we can prove, as the constitutional condition which goes with a chronic malarial cachexia is favorable to the arrest of those processes necessary to lenticular transparency.

Smallpox.—The frequency of ocular complications in smallpox is shown by Landesberg's table, which is stated as follows by Dufour (*Annales d' Oculistique,* May, 1901). In 270 cases of smallpox there were found affections of the lids in 1.11 per cent; conjunctiva, 57.78 per cent; lachrymal apparatus, 5.5 per cent; cornea, 30 per cent; iris, 2.9 per cent, and uvea, 1.48 per cent. Pustules may appear on the conjunctiva, but the cornea is usually affected in the stage of dessication, and by an ulcerative process, and is often accompanied by iritis and hypopyon. Dufour prefers subconjunctival injections of sublimate, 1-2,000, while Curmont and Rollet (*Annales d' Oculistique,* May, 1901) successfully treated 45 cases showing corneal and conjunctival lesions out of 691 cases of smallpox, with Methylene blue, 1-500.

Prothon (*Bull. de la Soc. des Sciences Med. de Lyon,* April, 1900) has seen optic neuritis following smallpox.

Pregnancy and Parturition.—Bosse (*Arch. Ophth.,* May, 1901) has studied the fundus changes in pregnant women, and finds them to consist of cloudiness and swelling of the disks from venous stasis and transudation. These changes are not accompanied by any deterioration of vision and disappear after labor. The changes associated with kidney disorders are more grave, though fortunately rare. Clap (*Boston Med. Surg. Journ.,* July 11, 1901) calls attention to the distinction between albuminuric retinitis and uremic amaurosis as occurring in pregnant women. They have in common a tendency to recur in successive pregnancies, and the fact that the first attack is not fatal to sight. While albuminuric retinitis may occur and be recognized by its visible changes at any time during the pregnancy, uremic amaurosis is seen in the later months, and with other symptoms of uremia. There are no visible changes in the eye in the latter. The question of terminating the pregnancy may be decided on the ocular aspect of the case, but usually rests on the other symptoms, especially in uremic amaurosis. In subsequent attacks the question of the vision is of greater importance, and may alone be sufficient ground for advising abortion. Cirincione (*La Clin. Oculista,* May, 1900) has examined the changes in the eye microscopically, and thinks abortion offers the prospect of a good result as to sight in retinitis. Bilateral retinal detachment was observed to occur in a woman with albuminuria during labor, by Knaggs and Haun (*Lancet,* May 13, 1901). Recovery ensued, which is the rule in these cases. Metastatic panophthalmitis occurring during the puerperium is usually monolateral, according to Pyle (*American Medicine,* May 11, 1901), except in cases of general infection. It occurs from the fifth to the fifteenth day and may be caused by a septic or non-septic embolus. The danger to life is small unless there is general infection. Scleral incision and drainage is preferred to evisceration or enucleation.

The Anemias.—Optic neuritis has been observed in chlorosis by Von Moll (*Med. Tydschr. v. Geneesk,* No. 23, 1900) and Muntendam (*Ibid,* No. 17, 1900). The former secured a perfect recovery from the internal administration of iron, but Muntendam's patient was left with decided whitening of the disks. Englehardt (*Munch. Med. Wochen.,* Sept. 4, 1900) reports a case in which the presence of choked disks, reduction of vision to p. l., headache, drowsiness, vertigo, epileptiform convulsions, right hemiplegia and hemi-anesthesia and anosmia lead to the diagnosis of brain tumor. The blood changes were those of chlorosis. Optic atrophy supervened, but the autopsy showed only intense anemia and no tumor. Ramos (*Gaceta Med. de Mex.*, No. 15, 1900) succeeded in stopping retinal hemorrhages in pernicious anemia (?) by ergot. The patient finally recovered.

Albuminuria and Bright's Disease.—From the observation of cases of intermittent albuminuria and cases in which no albumin was present, together with one case with albumin but with no evidences of organic diseases, all of which showed swelling of the lids, Fisher (*British Med. Journ.*, April 14, 1900) thinks this condition is due to vaso-motor instability and deficient metabolism rather than to organic kidney diseases. It would seem that anemia (hydremia) might be the cause of this symptom, by permitting transudation of blood fluids. Jackson (*N. Y. Journ.*, July 27, 1901) finds that some visible changes occur in the eye ground in 50 per cent of cases of Bright's disease, and characteristic albuminuric retinitis in 10 per cent. The fact that failing vision brings patients to the eye surgeon when no other symptoms have appeared to arouse suspicion of them or their physician, is well known.

Diabetes.—Ocular manifestations of diabetes are usually found in chronic cases. Besides the fluctuations of the refraction due to the changes of the index of refraction of the vitreous, as described by Landolt, Risley, and others, Alleman (*Journ. A. M. A.*, Jan. 26, 1901) has found ocular paralyses due to peripheral neuritis or peripheral or nuclear hemorrhages, and hemorrhagic and degenerative retinitis, conjunctival hemorrhages, paralysis of accommodation, toxic amblyopia, iritis, keratitis, cataract, and optic nerve atrophy. Dimmer (*Klin. Monatts, fur Augenheilk.*, July 1901) has seen a man, aged 32, with 7 per cent of sugar, in whom the outer halves of the disks were green, the inner halves swollen, and in one eye small white patches to the nasal side of the disk. There was paracentral scotoma for red and green. Diabetic retinitis can not be said to have the grave prognostic significance which belongs to albuminuric retinitis.

Syphilis.—Interstitial keratitis in acquired syphilis may be considered to be an established fact since the cases reported by Mendel (*Centralblatt fur Prak. Augenheilk.*, Jan., 1901), Strakow (*West. Ophth.*, xvii, p. 485), Soncek (*Zeitschr. de tsechechischen aertze,* Nos. 32 and 33, 1900), Wilder (*Trans. Ophth., Sec. A. M. A.*, 1901) and the reviewer (*Ophth. Record,* June, 1900). The latter has observed the same occurrence in the second eye of the patient reported and in another case equally well marked. The disease is much more responsive to anti-syphilitic treatment than when appearing in the subjects of hereditary syphilis, the futility of treatment in these cases being indicated by Callan's conclusions (*Am. Gyn. and Obstet. Journ.*, Feb., 1901) that we may by treatment delay its appearance in the second eye, but cannot prevent it.

Wicherkiewicz (*Annales d' Oculistique,* cxxxiv, p. 125) has found a nodular infiltration of the cornea in children with hereditary syphilis, the lesions being more yellow and opaque than phlyctenules, and accompanied with a deep vascularity of the corneal parenchyma. The condition yields to inunction, as does a marginal form of parenchymatous keratitis observed by the same writer. The early occurrence of iritis in syphilis is thought by Trousseau (*Annales d' Oculistique,* cxxxiii, p. 358) to indicate that the disease will be severe. Granular conjunctivitis in secondary syphilis, affecting the fornix in one eye and without papillary proliferation or subsequent scarring, is reported by Inouye (*Die Ophthal. Klinik,* Jan. 20, 1901) who refers to similar cases reported by Goldzieher and Sallter. The slaty tint and pigment heapings in the fundus, termed by Antonelli "rudimentary ophthalmoscopic stigmata," were observed by Cruchandeau (*La Clin. Ophth.*, Nov. 19, 1900) in two women suffering from conceptional syphilis, with nocturnal headaches, in one of whom the vision was reduced. Both were cured by iodides.

Organic Nervous Diseases.—An additional case of amaurotic family idiocy in a Jewish child of 13 months, with hydrocephalus and epileptiform convulsions, and showing characteristic changes at the maculae is reported by Kuh (*Journ. Nerv. and Ment. Diseases,* May, 1900). The optic atrophy found in cranial deformity, especially steeple shaped skulls, is thought by Friedenwald (*Arch. Ophthal.*, July, 1901) to be due to neuritis, brought about by pressure from early synostosis. The literature of the subject is thoroughly reviewed. In 23 cases of epidemic cerebrospinal meningitis, Chance (*Annals Ophthal.,* April, 1900) found edema of the disk quite often, with conjunctivitis, two cases of abducens palsy and one of ptosis. The series is noteworthy as presenting no cases of suppurative choroiditis. In idiopathic meningitis Teillais (*Annales d' Oculistique,* Aug., 1901) noted paralysis of both oculo-motor and trochlearis, due, he thinks, to pressure on the trunks by exudation in the sphenoidal fissure. There was also subretinal exudation, due to infection carried along the sheath of the optic nerve.

The localizing value of hemiopia was studied in three cases by Salomonsohn (*Deutsch Med. Wochen,* Nos. 42 and 43, 1900): (1) Right temporal hemiopia. In left eye p. l. and atrophy. The diagnosis of a lesion of the chiasm and left tract was verified by finding a cyst-adenoma of the hypophysis at autopsy. (2) Binocular inferior hemiopia from pressure of a syphilitic exudate on the chiasm. (3) Left homomymous hemiopia, due to a hemorrhage in the cortex of the occipital lobe, brought on by vomiting, following ether narcosis. These cases illustrate nothing new, except to show with what accuracy an intracranial lesion can sometimes be localized from a consideration of the ocular symptoms, especially those revealed by perimetry. By this examination, which showed hemiopia, first of one and then of both halves of the field, Barck (*Am. Journ. Ophthal.,* Oct., 1901) was enabled to diagnose lesions of both occipital lobes. He is supported by the post-mortem findings in similar cases. While the assumption that the macula is innervated from both occipital lobes, and that in the functional absence of one of the other can still render central vision possible, will hold for a lesion on one side, the retention of central vision in bilateral hemiopia must be explained on the hypothesis of a separate nerve supply for the maculae. Barck is disposed to agree with Monak in ascribing this function to the external geniculate bodies.

The ocular symptoms of tabes are briefly tabulated by Vaughan (*N. Y. Med. Journ.,* Aug. 18, 1900) from a collection of 920 cases in literature, as follows:

Muscle Paralysis ....30.5 per cent.
Inequality of Pupils.............41.6 per cent.
Reflex Pupillary Rigidity..........52.1 per cent.
Optic Nerve Atrophy.............35.6 per cent.

Functional Nervous Diseases.—The ocular disturbances in hysteria are numerous and on the whole characteristic. Bearing in mind that they are due to a functional anesthesia of the organ, the more common symptoms are easily recalled and understood. Functional disturbance of the motor apparatus is less common. It is well to bear in mind in medico-legal cases, the point made by Wurdemann (*Ophth. Record,* Oct., 1901) that the loss of sight to these patients is a real loss, and they are not malingerers. Numerous cases of the ordinary kind have been reported. An unusual one is mentioned by Harlan (*Journ. of Nerv. and Ment. Diseases,* April, 1900) in which no sight would be shown to exist in the affected eye, but recovery suddenly took place. Barraquer affirms

(*La. Clin. Oph.*, Dec., 1900) that the eye sees, but the patient does not know it, but in Harlan's case the prism test failed to demonstrate that the eye participated in the visual act. Pearse (*Albany Med. Annals*, June, 1901) attributes the smyptoms to vasomotor changes, due to the influence of the sympathetic acting as it does in the emotions. Vasomotor changes were nicely shown in Fromaget's patient (*Bull. de la Soc. Med. Chir. de Bordeaux*, March, 1900) who complained of lachrymation and dilatation of the conjunctival vessels, first of one eye and then of the other, lasting two or three hours. Diagnosis between hysteria and certain organic diseases may sometimes rest on the eye symptoms. Bregman (*Wiener Med. Wochen*, Oct. 6, 1900) has compared the symptoms of hysterical amblyopia and retrobulbar neuritis. They have in common the practically normal fundus, poor vision, headache and eye pain. In hysteria the pupils are normal, and in retrobulbar neuritis they are large and act slowly. The field in hysteria is concentrically contracted with reversal of the color fields at times, while in neuritis there is central scotoma. The conjunctival anesthesia of hysteria is lacking in neuritis, a point not made by Bregman. While late atrophy is seen more commonly in neuritis, it must not be forgotten that a secondary neuritis may be set up in hysteria by vasomotor changes. General considerations, such as recent severe exertion, exposure to cold, or acute infectious disease, would lead one to think of neuritis. In a case seen by Simek (*Zeitschr. de Techechischen Aertze*, Nos. 23, 24, 1900) the diagnosis lay between epilepsy and hysteria. Frontal headache, vertigo and convulsions beginning in the right hand and accompanied by loss of consciousness were decided to be hysterical because conjunctional anesthesia, spasm of accommodation and contraction of the visual fields, with reversal for colors, were found. A unique case of left homonymous hemiopia is reported by Zimmerman (*Oph. Rec.*, March, 1901), who thought it could be considered hysterical because it was temporary; the preserved halves of the fields were contracted, reversal of the color fields was found after recovery, and there was no other symptom of organic disease.

Pneumonia.—The embolic retinitis, described in pneumonia by Axenfeld and Goh, and resembling septic retinitis, has been found by Peters (*Klin. Monatts. fur Augenheilk.*, May, 1901) to precede pneumonia. There were six round, white spots near the macula, one third d.d. in size, with disturbances in the vision and constitutional symptoms. Pneumonia developed. Goh has found pneumococci in the exudation. Metastatic choroiditis in pneumonia does not, according to Bull (*Med. Record,* Aug. 31, 1901) develop in the severe cases necessarily. The prognosis for the eye is bad, and enucleation should not be performed.

Rheumatism and Gout.—The great amount of muscular, fibrous and vascular tissues around and in the eye are thought by H. W. Woodruff (*Journ. A. M. A.,* Feb. 9, 1901) to make the organ especially prone to rheumatic disorders. Gouty affections of the eye, of which we first think of Hutchinson's "hot eye," may affect the conjunctiva or cornea. Abadie (*Die Oph. Klinik,* July 28, 1901) thinks the "nocturnal cramp" and sandy feeling are characteristic of the former, and finds the internal treatment by benzoate of sodium, together with an alkaline wash, to be the most efficacious. The marginal and sickle shaped gouty ulcers of the cornea, which are so painful, are best dealt with by internal treatment, especially salicylate of sodium, with quinine, and rhus toxicodendron, gtt xv-xxv a day. So-called idiopathic edema of the lids is generally arthritic, according to Trousseau (*Arch. d' Ophth.,* xxi, 2).

Metastatic Arthritis and Gonorrhoeal Ophthalmia.—Gonorrhoeal ophthalmia appears to arise not only by the direct inoculation with the discharge, but by the action of toxins in the blood. Morton (*Ophth. Record,* June, 1900) has seen cases which permitted of this explanation, and Lechner (*Seventeenth Meeting Netherlands Ophthal. Soc.,* May, 1900) has noted the simultaneous appearance of phalangeal arthritis and conjunctivitis two weeks after a urethritis. The two types of ophthalmia bear no clinical resemblance. Metastatic arthritis from gonorrhoeal ophthalmia was seen by Paulsen (*Munch. Med. Wochen,* Aug. 28, 1900) in a child who developed ophthalmia on the third day, and fourteen days later first the left and then the right knee were affected. The joints were opened and the exudates gave a pure culture of gonococci. A similar case has been related to the reviewer by a colleague in general practice.

MISCELLANEOUS.

Ophthalmia Hepatica.—In Purtscher's case (*Graefe's Arch. L. I.*) a purulent cholo-cystitis, with abscesses of the liver was the apparent cause of xerosis of the cornea and conjunctiva and yellow vision. Transient iritis had occurred, and the eye ground had a yellowish white color, except at the macula. Though the eye symptoms disappeared before death, microscopic examination showed drying of the corneal and conjunctival epithelium, edema of the latter, and adhesion between the choroid and sclera at the posterior pole. In the left eye a small choroidal sarcoma was found. The retinal changes were slight.

Myxedema.—Wagner (*Klin. Monatts. fur Augenheilk,* xxxviii, p. 473) found a neuro-retinitis in the right eye and atrophy in the left, with myxedema. Under thyroidine the general conditions improved and the neuro-retinitis disappeared. The atrophy in the left eye was not thought to be connected with the general disease and remained unchanged. It is interesting to note in this connection that Coppez (*Arch. d' Ophthal.,* Dec., 1900) has observed optic neuritis of the rectrobulbar type in five cases following the ingestion of throidin, taken in a preparation sold for the cure of obesity.

Beri-beri.—Color blindness due to beri-beri is reported by Tillier (*Norsk. Magaz. f. Lagevidenskaben,* Sept., 1900). The vision, fields, and fundi were normal, but the ability to distinguish red or green was very much diminished. Blue and yellow were seen very poorly. There was probably a lesion in the occipital lobe.

Septicemia.—In thirty-five cases of septicemia, changes were seen in the eyeground in 28 cases by Litter (*Wochenschn f. Therap. u. Hygiene des Auges,* No. 42, 1901), usually a few days before death. There were small, white spots near the papilla (never near the macula), not related to the blood vessels, and with flame-shaped hemorrhages. The changes developed rapidly. In eight cases there was metastatic panophthalmitis. The changes may occur in either mild or severe cases, and similar ones are seen in Bright's disease, diabetes, pernicious anemia and, as was mentioned before, pneumonia.

Census of the Blind in Philadelphia.—A police census of blind persons in this city has lately been made at the instance of the Pennsylvania Home Teaching and Free Circulating Library for the Blind. It shows that there are 352 blind persons in the city, 111 of whom are in institutions for the blind. The report is believed to be accurate for all but four of the police districts.

REPORTS OF SOCIETIES.

CHICAGO OPHTHALMOLOGICAL AND OTOLOGICAL SOCIETY.

A regular meeting was held in the Columbus Building, Dec. 9, 1901, with the President, Dr. Casey A. Wood, in the Chair.

Dr. E. J. Gardiner reported an *unusual result in a case of iritis.* Reported in full on page 89.

Discussion.—Dr. F. C. Hotz was not quite sure as to whether the condition of the lens is to be charged to the iritis, or the iritis to a displacement of the lens. But his reason for being a little skeptical is the peculiar location of the synechiae at the lower border of the iris. If the iritis had occurred with the lens *in situ,* he cannot conceive how synechiae should form so close to the equatorial region of the lens; while if the iritis occurred after the displacement of the lens, a synechiae of the lower border of the iris would take place near the equator of the lens exactly where we find it in this case.

Dr. Gardiner, in closing the discussion, said that the same suspicion that arose in the mind of Dr. Hotz had also arisen in his mind when he saw the case, for the reason that the attachment was so high up near the equator of the lens. It is a question whether the lens did not become dislocated and set up the iritis. As far as any evidence could be obtained from the patient, unquestionably the lens was *in situ* at the time the iritis appeared.

Dr. William H. Wilder presented this case of *foreign body in the orbit* because it illustrates very well the importance of carefully investigating apparently trivial wounds, in the region of the orbit. This boy is twelve years of age, and presented himself at the Eye and Ear Infirmary, Nov. 11. He is a perfectly healthy boy, with a good family history. Three days before he entered the Infirmary he was playing with some comrades, and was pushed forward, striking the right eye with a snag. It made a trivial wound at the upper eyelid just below the supraorbital ridge. The wound was examined by a physician who saw him, who pronounced it very trivial, and opened it a little to facilitate drainage. However, the eye began to swell considerably, and three days after the injury he came to the Infirmary, at which time there was a great deal of edema, and extravasation into the lose cellular tissue of the lid, and he had considerable elevation of temperature. On the day after his admission, he was put under the influence of chloroform, the opening enlarged and the wound found not as superficial as it might at first appear. It extended somewhat under the skin of the upper lid, but by careful probing an opening could be detected through the tarso-orbital fascia, and through this a probe was introduced and a foreign body detected. The probe passed in nearly as far as the apex of the orbit, and after enlarging the wound sufficiently Dr. Wilder withdrew piecemeal from a point about the apex of the orbit these foreign bodies, which are pieces of wood. Together they made quite a good-sized piece. The temperature fell immediately after careful drainage of this wound. The wound was packed thoroughly with gauze, and it has nearly healed. There is still a slight discharge. There is a small opening which extends into the orbit about half an inch, but the wound is perfectly clean.

Discussion.—Dr. Albert B. Hale: There were two or three interesting cases reported in the *Klinische Monatsblatter* about two years ago of exactly similar wounds, which did not lead to irritation, but which healed, and five or ten years later, after some accident, it was shown that there was probably a foreign body present. Questions were asked about the history of the patients, and the nature of the accidents, and operative investigation showed exactly a similar condition to the one mentioned by Dr. Wilder of twigs or bits of wood which penetrated possibly the roof of the orbit and remained quiescent. His emphasis is very wise, that we should never consider these accidents as trivial, because these cases illustrate the necessity of investigation and active interference under all circumstances.

Dr. George F. Allen of Aurora, Ill.: We should not take anybody else's word for the fact that the foreign body has been removed. I was called some years ago to see a similar case at the hospital. A working-man coming home one dark night under the influence of liquor fell face downward among the stiff dry stubble of some weeds, and one penetrated the lower lid of the right eye just at the center of the inferior orbital margin. He consulted a physician the next morning and, after being under his care for a couple of days, was removed to the hospital, where Dr. Allen saw him on the fourth or fifth day. The first physician had removed a large piece of weed from the wound and the surgeons in attendance at the hospital had probed fruitlessly for more. Dr. Allen consequently did not probe as deeply as he should otherwise have done. The eye was quite blind and the media so cloudy that no view of the fundus could be obtained. The wound was irrigated and dressed; meningitis developed and an operation was performed. A piece of weed the size of a lead pencil and two and one-half inches long, sharp as a chisel, had passed into the cranial cavity and broken off at the apex of the orbit. The first piece removed was one and a quarter inches in length. The patient did not survive.

Another case which came under Dr. Allen's observation was that of a boy some eight or nine years of age who was struck in the eye with a stick while at play on the school ground. He made very little complaint, but the janitor, finding a wound at the inner canthus, sent the boy home and his mother took him to the family physician, who removed a clean pine sliver two and one-eighth inches long from the inner angle of the right eye. The boy had little or no pain, went to school the following day and never experienced any bad results from the accident. The pine sliver when placed in the orbit of the skull of a child about the same age and in as nearly as possible the position it must have occupied in the living boy, was long enough to reach through the sphenoidal fissure.

Dr. F. C. Hotz reported a case similar to that of Dr. Wilder. It illustrates the importance of carefully examining apparently slight wounds in the neighborhood of the eye. It emphasizes, furthermore, the statement made by Dr. Allen that we must not take it for granted that the foreign body has been removed, if we are told so; and it shows that we must not be satisfied even if we are shown the foreign body which has been removed from the wound, because another one may be there.

A boy, fourteen years of age, fell from a scaffolding and struck the left side of his face on a stick of rotten wood that was standing up in the ground. The stick broke, and pieces of the rotten wood became lodged in the wound below the left eye. The father removed a piece of the wood from the wound and showed it to Dr. Hotz when he was called. The father was not a physician, but a great believer in antisepsis, and so he washed the wound with salicylic acid solution and dressed it. The left eye did not present any evidence of disturbance for a number of days, except some swelling of the lower lid. But by and by a swelling of the tissues of the right eye showed itself, and the boy exhibited signs of lockjaw. When Dr. Hotz was called the wound in the skin was small, located just about at the infraorbital margin. The left eye was not hurt. The lid showed some infiltration and swelling, but what attracted his attention was the disturbance of the tissues at the inner angle of the right eye. He suspected that a piece of wood must have penetrated or passed through the tissues of the lower lid of the left eye.

passed through the nose and opened up the nasal wall of the right orbit. He at once began to probe the wound and the probe struck a piece of wood. Enlarging the wound, he passed in a pair of forceps and withdrew a piece of rotten wood over an inch long, and about one-quarter of an inch wide. It passed right straight across from the nose to the other eye. The boy was not relieved of his lockjaw, and subsequently died from tetanus.

Dr. H. B. Young, Burlington, Iowa, about fifteen months ago, saw a patient who had sustained a wound in the inner canthus of the left eye which was attended by considerable constitutional disturbance. He first saw the boy about twenty hours after he had received the injury. He had been playing with an associate, who threw a piece of milk weed at him, the outer bark of which had become dry and hard; and it penetrated the inner canthus of the left eye. There was extensive chemosis and almost complete ophthalmoplegia. Without an anesthetic he was unable to make a thorough examination, so the boy was placed on the table and a few whiffs of chloroform given him, but not pushed to the point of entire anesthesia. Sighing respiration came on. By means of this partial anesthesia we secured sufficient relaxation of the muscles to discover that the eye ball itself was not injured.

Dr. Young advised that before probing we should wait until the next day or so to see what would take place. The physician who came with the boy stated that a piece of milk weed had been withdrawn.

The boy passed a fairly good night. He was delirious at times. The next afternoon he gradually became worse; and at four o'clock died.

Post-mortem examination revealed two small scales from the bark of the milk weed inside the cranium; and a perforation just back of the cribriform plate. A large venous trunk had been wounded. Clots were discharged from the wound and purulent matter, a short time before death. Death occurred in about fifty hours from the time of the injury.

Dr. Wilder (closing the discussion) added that the wound in this case healed very promptly after removing the particles of wood from the posterior part of the orbit, and he felt certain that he had taken out every bit of it, because it was possible through the wound he had made to explore the orbit thoroughly; after packing it with gauze, new granulation tissue pushed the gauze out, and he felt sure everything was all right. We allowed the boy to go to see some friends who lived in Chicago, and he came back a few days later with the wound open. Evidently it had healed too quickly on the outside, and he was a little fearful that there was another piece of wood in the orbit. He explored the wound again thoroughly, and packed it. The sinus is not over three-quarters of an inch in depth, and still passes somewhat into the orbit. There has been a tendency for the pus to burrow in the cellular tissue of the upper lid.

Dr. W. H. Peck reported a case of *melanosarcoma of the ciliary body* in a woman aged twenty-four years.

She is married and has two small children. Her father is dead and one of his attending physicians said he had carcinoma of the stomach, but there was no autopsy. Her mother and brothers and sisters are alive and well except two sisters, who died from diphtheria.

There was no history of injury, except at one time she was severely burned about the head. She does not know whether the eye was burned at that time or not, but it is possible that it was.

Her vision is twenty two hundredths in both eyes. The tension in the right eye is slightly minus.

One year ago she noticed a small black spot on the right eyeball in the ciliary region on the temporal side. It remained quite inactive for nine months, since which time or during the last three months it has grown rapidly and now measures six millimetres in diameter.

Dec. 6 a section was made of the tumor for microscopical examination. The growth was found covered with conjunctiva and the base firmly attached, and the tumor of an exceedingly tough nature; in fact it was very hard to cut, which indicated that it was a spindle celled melano sarcoma. No trace of the sclera was found in or under the section.

The specimen was examined in the pathological department by Drs. Brown and Wilder and pronounced a spindle celled melanosarcoma by both of them. There were a great many new blood vessels.

Ophthalmoscopic examination of the eye did not reveal any evidence of the growth internally.

Discussion.—Dr. Brown Pusey questioned Dr. Peck's diagnosis as to this case being one of tumor of the ciliary body. He does not think the growth penetrates the globe. With the ophthalmoscope Dr. Pusey could find nothing which would indicate pathological changes inside. and to his sense of feeling there is no decrease in tension. The tumor undoubtedly is a superficial one.

Dr. C. D. Wescott agreed with the last speaker.

Discussion on Dr. Peck's Case.—Dr. William H. Wilder: This growth apparently has developed from the sclero-corneal junction, because we find little or no evidence that the interior structures are involved. No enlargement of the iris could be detected. Tumors of this class may develop in the sclero-corneal junction. There is one such specimen in the collection at the Ear and Eye Infirmary. It is a melanosarcoma of the sclero-corneal conjunction, which necessitated enucleation, and the tumor, although it had spread over the cornea, did not penetrate the eyeball. The specimen removed with this tumor would necessarily show no sclerotic tissue, because it was merely a section Dr. Peck removed for the purpose of microscopical examination and to determine the nature of the growth. Cases of glioma and sarcoma of the interior of the eye may show no increased intraocular tension for a considerable time. It is shown by Collins and others, who have gone into this subject quite thoroughly, that the prognosis is graver after the tension becomes increased. We can not place very much stress upon the absence of increased tension in these cases, but Dr. Wilder's own opinion would be that we have to deal here with one of those rare forms of melanosarcoma that spring from the sclero-corneal junction.

Dr. Peck (closing the discussion) did not advance any positive idea about this case being one of tumor of the ciliary body. A section was removed, examined and, no scleral tissue being discovered, he concluded that it had been pushed aside. Dr. Peck agrees with all that has been said with regard to the possibility of the tumor being external to the sclera, although he is not certain in regard to that. But that was his impression, and he hopes he shall be able to get the globe and demonstrate later whether the tumor is intra-ocular or not.

Brailey, in Norris' and Oliver's System, Volume III, page 327, lines 33 to 36, states that, "Excluding tubercle and gummata, primary tumors of the ciliary body are exceedingly rare, as will be gathered from the statement that literature contains only about thirty-five cases of the kind."

Dr. Henry Gradle reported a *Case of Bitemporal Hemianopsia.*

Dr. Allen asked if the boy gained materially in weight during the development of the hemianopsia. He saw a case of bitemporal hemianopsia in a girl in consultation, and she gained thirty pounds in weight during the time the hemianopsia was developing.

Dr. Gradle replied that he could not obtain any information regarding those details. The history was imperfectly given by the patient.

Dr. E. F. Snydacker thought the patient's appearance presented some of the characteristics of acromegaly.

Dr. Gradle replied that there were no changes characteristic of that disease present.

Dr. Snydacker said the case reminded him of a very interesting instance of bitemporal hemianopsia which Dr. Patrick showed at the Cook County Hospital. A diagnosis was made of tumor in the middle of the chiasm. The man had severe headache and vomited a great deal. Patient was subsequently admitted to the Michael Reese Hospital, operated on, but the chiasm was not involved.

Dr. Clark W. Hawley showed *two cases of steel removed from the lens.*

Dr. Casey A. Wood reported a *case of Crypto-glioma.*

DENVER OPHTHALMOLOGICAL SOCIETY.

Meeting of December 17th. Dr. Edward Jackson in the chair.

Dr. D. H. Coover showed the case of a woman, aged 50, with *recurring corneal ulcer,* situated 3 mm. from nasal limbus. Ulcer 3 mm. broad and quite deep. He has been unable to assign any definite constitutional or local cause. He has used eserine, but with discomfort to the patient. Atropine has been used at intervals. The ulcer is now improving under boroglyceride.

Discussion. Dr. E. M. Marbourg, of Pueblo, thought a partial peritomy to cut off the blood vessels running to the ulcer, followed by active stimulation would be of benefit. He has seen a good many indolent corneal ulcers in ranchmen and cattle men, and thinks this case analogous, as she is the wife of a ranchman. These people frequently attribute the cause of their trouble to poisoning of eyes to some weed, frequently rag-weed. He has found that touching the ulcer with full strength argentamin of great service. It attacks only diseased tissues, turning them white, and thus serving a double purpose, as an escharotic and staining agent.

Dr. Edward Jackson advised the use of eserine solution sufficiently weak not to produce discomfort, with occasional use of atropine. He would touch the ulcer with a 10 per cent solution of nitric acid.

Dr. Wm. C. Bane would stimulate by dusting the ulcer with calomel. Would inject subconjunctivally 1-2000 bichloride in normal salt solution.

Dr. E. M. Marbourg, of Pueblo, demonstrated a very *simple and unique ocular bandage.* The operator stood at the back of the patient's head with a two inch roller bandage in right hand, and with left hand grasped the bandage as unrolled, eighteen inches from the free end. The left hand was now carried under the patient's left ear, while the bandage was carried over the patient's left eye with the right hand and continued on around the right side of head to the back. Here the free end of bandage was met and crossed and the roller turned back in the direction whence it came, around the right side of head and forehead, thence to left side of head above the ear, where the free end of bandage meets it again and a tie was made. To remove the bandage a pair of scissors was passed under the intersection of bandage at back of head, and with one snip the bandage was loose, and it was thrown forward free from the head and eyes. It was quickly placed in position and still more quickly removed, and was light and secure.

Dr. Melville Black showed the case of a man 70 years of age, with ectropion, who for years has been exposed to all kinds of weather. Some years ago he began having epiphora, causing him to frequently wipe his eyes. This has gradually become more annoying, and the eyes have become more irritable. It is surmised that the puncta of the lower lids were at first slightly displaced from contraction of the skin of the lower lids and face, and that the epiphora and his efforts at wiping increased the skin contraction until ectropion resulted. The ectropion, from his statement, has existed some years. No actual closure of the lachrymal passage exists. There is ectropion of the inner third of each lower lid, with very great thickening of the palpebral conjunctiva. The margin of lids at their thickest portions are about 7 mm. in their antero-postero diameters. Dr. Black proposes doing the following operation. Beginning just posterior to the line of eyelashes two straight cuts are to be made, one back and outwards, the other back inwards, leaving between them a V with apex forward and base at posterior lid margin. These two incisions are to be carried downward until they meet about 5 or 6 mm. below, in the palpebral conjunctiva. The incisions are made sufficiently deep to pass through the so-called cartilage, thus removing a diamond shaped piece composed of lid margin, palpebral conjunctiva and cartilage. One suture is now introduced through the points of the posterior lid margin on either side of the wound, and the latter closed, thus reëstablishing the posterior line of lid margin, and the upper surface of the lid. It is believed that the operation will mechanically draw the ectropic lid back into position. He has performed the operation three times before for similar conditions with satisfactory results.

Dr. Libby (Colorado Springs) and Dr. Bane thought it might be possible by the use of Lanolin and massage to overcome the ectropion.

Dr. Coover has had several cases of ectropion with diseased lachrymal passages which were corrected by operating upon the lachrymal passages and then using massage.

Dr. Jackson was in favor of the operation as proposed.

Dr. Black thought the case of too long standing, and the palpebral conjunctiva too much thickened to admit of correction of the ectropion by massage.

Dr. Wm. C. Bane reported further upon the case of the boy who was shown at the last meeting, who had sustained a *penetrating wound of cornea, iris and lens from a piece of kindling.* A few days after the last meeting the eye became soft, and tender to pressure above, and, considering the gravity of these symptoms, and the possibility of danger to the other eye, he advised enucleation, to which the parents consented. The eye was accordingly removed. Dr. Bane also reported that the *case of exophthalmus* shown at the last two meetings, was worse; more chemosis and more exophthalmus.

Dr. Geo. F. Libby, Colorado Springs, reported the case of a woman, aged 58, who has, to all appearances, *albumanuric neuro-retinitis* with flame shaped hemorrhages in O. S., while in the right eye the process looks to be neuro-retinitis, with atrophy, without hemorrhages. There is no knowledge of kidney trouble on the part of the patient. He is having the urine examined, but has not yet had a report from same.

Dr. Edward Jackson reported *two specific cases in the third stage,* one a man of about 35, and the other a woman of about 30 years of age, both of whom have Argyll Robertson's pupils without other ocular lesions, and have no other signs of tabes.

Dr. Edward Jackson gave a demonstration in *Retinoscopy,* that was much appreciated by all present.

MELVILLE BLACK.

SECTION ON OPHTHALMOLOGY.

COLLEGE OF PHYSICIANS OF PHILADELPHIA.

Meeting, December 17, 1901. Dr. William Thomson, Chairman, presiding.

Dr. Geo. C. Harlan showed a patient upon whom he had performed a *Sphincterectomy* in each eye; an operation which he thinks should be performed more frequently than it seems to be. It is occasionally referred to in foreign publications, and Knapp describes it in Norris and Oliver's System, but the text-books do not usually mention it. Critchett's iridodesis, with its permanent anterior synechiæ and its danger of inflammatory complications, is no longer in question; Bowman's proposition to cut the sphincter by means of a narrow probe-pointed knife introduced through the pupil was found impracticable, because of the impossibility of avoiding injury to the posterior surface of the cornea; de Wecker's iridotomy with his scissors endangers the lens and is a difficult operation; he has himself abandoned it except in case of dislocation of the lens.

Sphincterectomy as now performed gives much better vision than peripheral iridectomy, which is notoriously disappointing in its visual results, and, in addition, is free from the dangers and difficulties of the other operations. The blunt hook is passed through a small opening in the periphery of the cornea and is engaged in the margin of the pupil, which is drawn out and cut off near the hook. The iris is then replaced with a spatula. Eserin was instilled after the first operation, but omitted in the second, and atropin was used in both on the next day. There was no reaction to speak of. The patient, who has central opacities with comparatively clear cornea beyond, is much pleased with the result, but her vision has not yet been tested, as the atropin mydriasis has not quite disappeared. It is hoped that further improvement will result from tattooing the corneal opacities.

Dr. Wm. Campbell Posey exhibited a case of *Superficial Punctate Keratitis* occurring in a young colored man, the eyes, when first inflamed, presenting the clinical picture of marginal keratitis, with added infiltration of the center of the cornea with fine whitish dots underneath the epithelium. The epithelium was present over the ring-like areas of infiltration also. Under hot compresses, kuinin, eserin and boric acid, the cornea cleared and the patient was discharged with good vision in each eye. Several months later the inflammation returned, the right cornea being densely hazed in the central zone, with the periphery comparatively unaffected, while the left cornea was also infiltrated, chiefly below, though the entire membrane was dotted with grayish-white rounded areas, which seemed to be under the epithelium. The epithelium in both eyes was thickened and proliferated, and the surface of the cornea was irregular over the areas of greatest infiltration. The same treatment was repeated, with similar good results. The point of interest was the dissimilar appearances of an inflammation, apparently of the same type, occurring in each eye within a short period of time, and of the limitation of the affection, notwithstanding its intensity, to the superficial layers of the cornea.

Dr. Posey also showed a woman, 52 years old, with *Syphilitic Ulcer of the Right Lower Eyelid,* occurring in the tertiary stage of the disease. The ulcer had destroyed the ciliary border of the outer third of the lid. In addition to the ocular lesion, the patient was suffering from a necrosis of the frontal bone. He believed that secondary and tertiary manifestation of syphilis occurred much more rarely upon the lid than primary sores.

Discussion. Dr. Harlan recognized the rarity of syphilitic ulcer of the margin of the lid, recalling only two cases that had come under his notice. Since the affection was rather common in other situations where the skin and mucous membrane joined, one would expect to find the lid margins more often attacked. Dr. Veasey called attention to a case he had presented to the Section four years ago, in which there was ulceration of the outer half of the conjunctiva of each eye, occurring during secondary syphilis. Notwithstanding the large ulcerated area, the patient a year later exhibited only minute scars as evidence of the previous extensive inflammation. Dr. Risley thought that tertiary syphilitic ulcers of the eyelid must be very rare, as he had seen but one case in his own practice. In that, and in others seen in the practice of his colleagues, they were at the junction of skin and mucous surfaces. He was therefore interested in Dr. Harlan's suggestion that this might be a favored point of selection. Dr. Oliver had seen three cases, two occurring in the wards of the Philadelphia Hospital, and one in the public practice of the late Dr. Norris.

Dr. Charles A. Oliver gave the following conclusions as the results of extended experimentation upon the *Effects of Change of Color upon Pigment Bacteria:*

(1) Color changes both of kind and of intensity take place in and around many chromogenic bacteria when such microorganisms are placed under different color conditions. (2) Rehabilitation of

chromogenic bacteria into old color-environments, after having later obtained a new color-value under any particular color-condition, is quite frequently accompanied, sooner or later, with a return of the germ's color-equivalent to that which it primarily held while in its original situation. (3) Differences of color-conditions in pigment bacteria most probably signify, in part, relative changes in the various methods of obtainment of sustenance, peculiarities in the kinds and the ratios of food-stuffs, and irregularities in the character of resulting excreta: each species of color-bacterium exhibiting its chromogenic change in a typical and relevant manner, a behavior that has its determining effect upon the very life of the germ itself. (4) The naming of bacteria by specific coloration is only of value when the actual habitat of the micro-organism is understood. (5) As a postulate conclusion based upon these facts, it is most certain that all living faunal and floral color-changes of true objective type are expressions of biochemical peculiarities taking place in and around such organisms: a mere difference of molecular motion, as it were, in part dependent upon the relationships existing between active life force and coexisting conditions.

Dr. S. D. Risley presented a brief paper setting forth the plan which has been adopted in Philadelphia for the *Systematic Annual Examination of the Eyes in the Public Schools.* In introducing the subject he gave briefly the history of his own work in the school examinations, the report of which was first presented in April, 1881. He pointed out that one of the features of the report which differed from all other examinations made up to that time was the conclusion that the increasing percentage of myopia in the schools was not due solely to untoward hygienic conditions, but largely to the presence of congenital defects in the eyes of the children. As a natural corollary of this conclusion came the obvious necessity for the entrance examination of the eyes at the beginning of school life, to determine in every case whether they were fitted to undertake safely the strain which would be required. He had repeatedly demonstrated in the following years how this examination could be made by the teachers, since it was impracticable to secure expert examiners. Later, a paper presented to the State Sanitary Association at Norristown, Pa., in 1890, containing the essential features of the plan now adopted in the schools, was published in the "Annals of Hygiene."

The plan introduced through a committee of the Public Education Association, and adopted by the Board of Public Education, goes into effect in January, 1902. It provides for the examination of the eyes of every pupil at the beginning of each school year and as a part of the entrance examination of every new pupil. The examination consists in ascertaining the acuity of vision for each eye at 20 feet on a card of test-letters, and the near-point with diamond type. Instructions regarding the use of the cards and the method of recording the findings are printed on the back of the cards. A third card is provided on which to record the results of the examination for ten successive years. This card is to be preserved in card-index form as a part of the archives of the school, and is to follow the pupil in case of transfer or promotion. A fourth card is to be filled up and sent to the parents, advising professional advice should the examination reveal certain grades of impairment of vision.

Dr. C. A. Veasey reported a case of *Cystadenoma of the Lachrymal Caruncle* which was seen in a female aged 57 years. The growth was about the size of a pin's head, of a bluish-red color, and was situated in the right lachrymal caruncle. It lay beneath the surface, the caruncular tissue overlying it being translucent, was slightly ovoid in shape, and presented the external appearance of a minute angioma. It was removed under cocain anesthesia, and microscopic examination showed it to be a cystadenoma developed from the tubular glands in the caruncle.

Dr. William M. Sweet exhibited a *Portable Magnet* for use with the 110-volt circuit. It is slightly larger than the Johnson magnet, more closely resembling in size the Lippincott instrument, measuring 10¾ inches in length, 2½ inches in diameter, and weighing 9½ pounds. The core is 1½ inches in diameter, gradually tapering toward one end. This method of construction is believed to insure greater drawing power, by condensing the force toward the points. The core is tapped at one end to take the ordinary points of the Hirschberg magnet, and, in addition, there is supplied an ovoid point, ⅝ of an inch in diameter at the base and ⅝ of an inch long. Tests made of the power of the magnet showed that a mass of iron weighing 73 pounds was lifted when in contact with the end of the core. With the ovoid point, a piece of iron wire weighing 15 mg., and suspended by a fine cord, was attracted horizontally from a distance of 4½ inches. In four cases of recent injury the magnet readily extracted the metal from the lens in one case, from the posterior chamber in two cases, and from the vitreous chamber in one case.

Discussion. Dr. Hansell referred to the case in which the steel was located by the x-rays in the temporal margin of the lens. When the magnet tip approached the cornea, the presence of the metal was clearly shown by the forward movement of the opaque lens and the iris. The steel was extracted through an incision in the cornea, on the opposite side. He believed that when the metal is situated in the posterior chamber, the incision should be made in the cornea on the side opposite to the position of the body, as it could then be removed through the pupil without iridectomy and with less liability of becoming caught in the iris. Dr. Schwenk (by invitation) detailed the histories of two cases of foreign body in the posterior chamber, in both of which the magnet removed the steel. In one instance the lens was uninjured, and vision after operation equaled that of the good eye. In the other case, the lens was cataractous and swollen, but the period since operation had been too short to determine the vision. Dr. Risley, in reply to an inquiry by Dr. Thomson, detailed the history of a case in which the foreign body had penetrated the cornea in its lower outer quadrant, passed upward, inward and backward, through the lens, and had lodged in the choroid at the upper nasal portion of the ball just anterior to the equator, where it was located by Dr. Sweet by means of a skiagraph. The lens was opalescent and swollen. In consultation with his colleagues at the Wills Hospital, a point of much interest arose for discussion—whether an iridectomy should be made, the lens extracted, and the magnet tip then carried backward toward the known location of the foreign body, or whether it would be better to extract the bit of steel through a small opening in the sclera, made in its immediate location. The latter course was adopted and the fragment of steel secured without difficulty. The man was discharged from the hospital in two weeks with the ability to count fingers and a gray-red reflex from the fundus through the opalescent lens. Dr. Risley was of the opinion that the extraction of the foreign body through the sclera was a much safer operation than to have carried the tip of the magnet though the suspensory ligament and vitreous after the severe traumatism of extraction of the lens. Dr. Sweet had seen several instances of loss of the eyeball from attempts to remove the steel from the vitreous chamber through the opening in the iris after the lens had been evacuated. He believed that it was better in every instance where the wound of entrance had closed, and the foreign body was situated in the vitreous chamber, to remove the steel through a new opening in the sclera close to the position of the metal, leaving the opaque lens for treatment at a subsequent date.

William M. Sweet,
Clerk of Section.

SAN FRANCISCO SOCIETY OF EYE, EAR, NOSE AND THROAT SURGEONS.

Meeting of Jan. 16, 1902. Dr. F. B. Eaton, President, in the chair.

Dr. A. Barkan exhibited the *Hirschberg Hand-magnet* and demonstrated its use. He showed that it supports a steel rod weighing 19 pounds. Nevertheless, in three cases of foreign body in the depth of the eye, this magnet, on approximating it to the eyes, caused no pain and no change of position of the foreign body and he was obliged to use the Haab magnet to accomplish the extractions, as he did not wish to put the probe tips of the Hirschberg magnet into the eye. When he had succeeded with the Hirschberg magnet the foreign body was in the anterior chamber, hence he considered it an unsatisfactory instrument when the foreign body is in the depth of the eye.

Dr. Barkan also presented a patient, a man who had stated that while working with a pick he was *struck on the eye* with a piece of stone. On examination a wound was seen in the upper part of the cornea. Dr. Barkan had doubted this statement of the foreign body being a stone, as the Hirschberg sideroscope gave a positive reaction. Hirschberg hand-magnet caused no pain, but the Haab magnet gave the pain reaction and the foreign body appeared in the anterior chamber and was extracted. It weighs 1.12 grains and is 1-80 inch in diameter, and on microscopical examination by an expert was found to be quartz rich in iron. The injury occurred four weeks ago, the iritis is subsiding, but the globe slightly tender to the touch.

Dr. Barkan presented another patient, a man whose *eye had been penetrated by a bit of metal* 22 months ago. He had consulted a doctor but with no result, and had suffered for nearly two years. On examination a piece of metal about 3 mm. long and 1 mm. wide was seen on the iris, and a condition of siderosis, there being fine deposits of iron on the capsule and near the edge of the pupil. Vision was 20-70; there was no pain. An incision was made in the cornea and the bit of metal readily extracted with the Hirschberg new hand-magnet. The eye is now recovering, and vision is now 20-40 with correction, and he reads Snellen .5.

By means of a pig's eye in which he made a corneal incision, and another in the sclerotic, inserting through the latter into the vitreous a bit of metal, Dr. Barkan demonstrated that it was necessary to introduce the pole of the Hirschberg hand-magnet through the corneal incision about 3 centimeters into the eye, before the metal was withdrawn.

Discussion. Dr. Pischel said that the giant and the hand-magnet can supplement each other. If, for instance, the giant magnet has drawn a small piece of steel from the vitreous into the anterior chamber, the hand-magnet may be introduced into the anterior chamber and remove the foreign body more gently than the giant magnet. The hand-magnet can naturally be handled with greater ease and accuracy, while he found several times great difficulty in placing the head of the patient just so before the giant magnet that the tip touched the center of the corneal wound. During these manoeuvres the foreign body follows on Descement membrane the tip of the magnet and may easily scratch it.

Forceps of non-magnetic metal are useful. A few days before, he had removed a long, flat piece of steel from the vitreous through the widened scleral wound. The tip on the foreign body appeared in the wound, but the ragged edges held the fine steel plate firm as it crossed the slit of the wound. He therefore got hold of the protruding edge, turned it and removed it with ease. But his forceps were attracted by the magnet with such great force that he had difficulty in controlling it. He therefore suggested the use of forceps of non-magnetic metal, nickel plated brass or aluminum, for instance.

Dr. Redmond Payne asked what objection there would be to making the point of the magnet small, so it could be inserted into the eye without doing injury. He also asked if the passage of the foreign body through the cornea lens and iris did less harm than its penetration through the ciliary body.

Dr. Geo. H. Powers asked what path the foreign body generally took in coming out.

Dr. Barkan, in closing the discussion, said in reply to Dr. Powers that the foreign body generally came out by the path by which it entered. In reply to Dr. Payne he said some of the wounds had been in the ciliary body, but they had readily healed. The result was rather in proportion to the septic or non-septic condition of the foreign body. He agreed with all Dr. Pischel had said. He uses a pair of nickel forceps. He had never used forceps in extracting foreign bodies, but thought they could be used.

Dr. L. C. Deane demonstrated his *modification of the Mackenzie-Davidson localizer* and exhibited photographs of two cases of localization of bird shot. He had modified the apparatus so that a larger plate could be used, and added another vertical wire.

Discussion. Dr. Payne spoke of the value of the apparatus as modified by Dr. Deane, especially in locating shot and other non-magnetic foreign bodies, whether in the eye or orbit. He had had one case where Dr. Deane had localized the foreign body. Dr. Barkan said the apparatus is very valuable; he had seen Dr. Mackenzie-Davidson demonstrate its use.

Dr. Barkan exhibited a specimen of *pediculus pubis on eye-lashes.* They came from the eye-lid of a young woman of doubtful reputation who had made use of a towel carelessly.

The President, on behalf of Dr. A. H. Voorheis, exhibited apropos of Dr. Barkan's case of siderosis, a beautiful specimen illustrating this condition, it being a complete crystalline lens which had been extracted in its capsule, and of a bright green color. In it could be seen a fragment of iron which had given rise to the condition of siderosis.

MEXICAN OPHTHALMOLOGICAL SOCIETY.

Session, 10th Oct., 1901. Dr. Ramos, President.

Dr. Ramos presented to the society Dr. Galezwoski, of Paris, and handed him a diploma of honorary membership. Dr. Galezwoski thanked the society for the honor, and promised to try to become worthy of it.

Dr. Velez showed the following cases: First, a child of four months, with *Congenital Bilateral Korectopia.* Second, a young woman with *partial Staphyloma of the right eye,* cured by repeated cauterizations. Third, a *Corneal Leucoma,* suitable for tatooing. Fourth, *penetrating wound of right eye,* caused by a bit of iron, with fear of sympathetic irritation, in which he proposed enucleation with implantations of vaseline.

Dr. Troncoso described a *new form of Mires, for the ophthalmometer,* and showed various models of instruments. He stated that after a period in which the instruments had been used with undue enthusiasm, there seemed to have come a reaction against it, which probably was of service, but brought unwarranted neglect upon it. The instrument is of great value as a menas of measuring the cornea for the determination of astigmatism. It is certain that the ophthalmometer has not realized its early hope as a direct aid to determine the refractive element of the eye. Its use is restricted to the detection of the difference between the principal meridians in the anterior surface of the cornea, and with these limitations the instrument is undoubtedly of service in all cases. Its greatest usefulness is found in determining astigmatism in children, in illiterates and in the aphakic.

In the United States the instrument has been considerably improved over the original French models, but the artificial nomenclature of astigmatism with the rule or against the rule has been constantly maintained. Troncoso objects to such terms, partly because they are not scientific, partly because they cannot embrace those numerous cases where the axes lie midway between the horizontal and perpendicular meridians. Besides this, although the meridians of curvature may be relatively the same for hyperopia or myopia, yet the correcting cylinders lie different, and the beginner is apt to become confused. The axes and the difference between them are the important problems solved by the instrument. Troncoso has introduced a device (on the Hardy ophthalmometer) by which there is at once given a reading of the astigmatism and the location of the axes.

Galezowski remarked that the ophthalmometer could not displace the classical method of Danders; the instrument's chief use was to confirm other tests, and to examine children, soldiers and simulants. He liked Troncoso's modifidation. A. B. Hale.

The presidency of the Section of Ophthalmology at the last meeting of the British Medical Association, was appropriately held by Dr. Walter H. H. Jessop, who is a native of Cheltonham, and who, in his opening address, discussed many points in regard to the pathology and diagnosis of glioma.

Probably the only bank in the United States, if not in the world, that has a blind man for president is the Second National Bank of Orange, N. J., the directors of which recently elected Hubert L. Pierson its executive head. Mr. Pierson has been a stockholder in the bank since its organization, ten years ago, and during the greater part of that time has been a member of the board of directors. He always has been punctual in his attendance at board meetings, and his advice and counsel have been respected by his associates. Mr. Pierson is a man of wealth, and, notwithstanding his infirmity, conducts a large business in South Orange, where his home is. He owns two flour and feed mills and personally manages them, besides attending to affairs in his office. He also is an investor in real estate, and owns large pieces of property in the town, and he makes and keeps track of investments in other lines. Mr. Pierson has been blind for fourteen years.

NEWS ITEMS.

PERSONALS AND ITEMS OF INTEREST SHOULD BE SENT TO
DR. FRANK ALLPORT, 92 STATE ST., CHICAGO.

Dr. A. D. McConachie, who has been connected with the Presbyterian Eye and Ear Hospital at Baltimore for ten years, has resigned.

George Stoner, of Edinborough, practiced for many years as an aural and ophthalmic surgeon in Liverpool, being on the staff of the Liverpool Eye and Ear Infirmary.

Dr. David Little, the accomplished representative of ophthalmology in Manchester, has been elected to the presidency of the Ophthalmic Society of the United Kingdom.

The new Emergency Hospital at Buffalo, N. Y., has opened for the reception of patients, and Drs. Homer J. Grant and Benjamin H. Grove have been appointed Ophthalmologists.

The honor of knighthood has recently been conferred on Dr. George Anderson Crichet, who has long been one of the most skillful, as well as one of the most successful, ophthalmic surgeons in London.

John Griffith, of England, who died at the early age of thirty-five years, was second clinical ophthalmic assistant at St. Mary's Hospital and Assistant Surgeon to the Royal Westminster Ophthalmic Hospital.

Hospital for Deaf and Dumb Institute.—Plans have been completed and contracts let for the erection of a hospital, 60 by 100 feet, fully equipped, for the Deaf and Dumb and Blind Institute at Berkeley, California.

An Egyptian Medical Congress is to be held at Cairo under the patronage of the Khedive, December 14, 1902. The president of the congress will be Dr. Abbati Pacha, and the secretary Dr. Vozonoff. The ophthalmic section will be under the presidency of Dr. H. Milton.

Amongst recently deceased British oculists are to be mentioned Archibald Hamilton Jacob. He was a well-known Irish practitioner, who was for many years Professor of Ophthalmology in the Royal College of Surgeons in Ireland. In 1880, he was appointed Oculist in Ordinary to His Excellency, the Lord Lieutenant, a position which he continued to hold until the time of his death.

Officers of the Chicago Ophthalmological and Otological Society.—At the annual meeting of this society, held Jan. 14th, the following officers were elected: President, Dr. Wm. H. Wilder; vice president, Dr. C. P. Pinckard; secretary-treasurer, Dr. Brown Pusey; committee on membership, Dr. Casey A. Wood, chairman; Dr. C. D. Wescott, and Dr. Lyman Ware. Dr. George F. Suker was elected to membership.

To Entertain Professor Haab, of Zurich.—A committee, consisting of Drs. Frank Allport, F. C. Hotz, and Casey A. Wood, was appointed by the President of the Chicago Ophthalmological Society, to take charge of the entertainment of Professor Haab, while in Chicago during his visit to America this summer. Professor Haab will doubtless read a paper before the Ophthalmological Section of the American Medical Association.

A Plan to Aid the Blind.—Frank King, a blind man of Kansas City, Kan., and a former pupil in the Kansas school for the blind in that city, has evolved a plan by which, he believes, the blind people of the United States may be placed on an equal footing with those who can see, so far as industrial qualifications are concerned. Mr. King's plan is to establish a colony of blind people somewhere out in Kansas and make the members of the colony self sustaining by raising broom corn and making it into brooms.

VISUAL ECONOMICS is the title of a new work which has been jointly prepared by Prof. Magnus of Breslau, Germany, and Dr. H. V. Würdemann of Milwaukee, dealing with the effects of accident to the eyes upon the working capacity of the individual. It gives rules for estimation of economic damage and is adapted to the forms of American law, so that it may be readily used not only for the calculation of the damage to the individual but as a work of reference and a reliable authority upon the medico-legal results of such accidents.

Numerous Applications for Membership in the Chicago Ophthalmological Society.—In view of the fact that there is a large number of applications for membership in the Society, Dr. H. V. Würdemann, of Milwaukee, offered the following amendment: "Hereafter applications for membership in the Chicago Ophthalmological and Otological Society must be accompanied by a written original thesis, upon some eye, ear, nose or throat subject, which is to be submitted to the membership committee and approved, then read and defended by the author in open meeting; the election to be held at the next meeting of the Society." This amendment will come up for adoption or rejection at the next monthly meeting.

At a meeting of the Trustees of the University of Pennsylvania, held February 4th, 1902, Dr. George E. de Schweinitz, of Philadelphia, was elected to the Chair of Ophthalmology in the Faculty of Medicine of the University of Pennsylvania. His duties do not begin until September 1st, 1902, and he will, therefore, continue with his work in the Jefferson College until the end of the present term of service.

The selection of the Trustees of the University of Pennsylvania will be most heartily endorsed by the medical profession of the United States, and most especially by American ophthalmologists, who regard Dr. de Schweinitz with the highest and most cordial consideration. THE OPHTHALMIC RECORD extends to both Dr. de Schweinitz and the University its congratulations.

Jonathan Hutchinson, F. R. S., General Secretary of the New Sydenham Society, has requested Messrs. P. Blakiston's Son & Co., of Philadelphia, the American agents of the Society, to announce the publication of "An Atlas of Clinical Medicine, Surgery and Pathology," selected and arranged with the design to afford, in as complete a manner as possible, aids to diagnosis in all departments of practice. It is proposed to complete the work in five years, in fasciculi form, eight to ten plates issued every three months in connection with the regular publications of the Society. The New Sydenham Society was established in 1858, with the object of publishing essays, monographs and translations of works which could not be otherwise issued. The list of publications numbers upwards of 170 volumes of the greatest scientific value. An effort is now being made to increase the membership, in order to extend its work.

A concert given by the blind to the blind for the blind filled Association Auditorium of Chicago recently and netted nearly $400 for the American Blind People's Higher Education and General Improvement Association's fund. Every one of the dozen or more performers was blind, and so was half the audience, but that fact did not detract from the artistic ability of the one nor the enjoyment of the other. Every number was encored, some of them twice, and the encores were justly earned. The vocalists were Edward J. Nolan, Miss Belle Hyman, Miss Sophia Reimers, Miss Anna Marble and John Reardon; Miss Nellie McLaughlin and Miss Mina Hockett recited, Louis E. Blume was the violinist, and Emmette J. Roney and Miss Margaret T. Conway, the pianists. The musical selections were, with few exceptions, of a high classical order, and the vocal numbers included solos, trios and choruses. Edward J. Nolan was the chairman of the entertainment committee, which consisted of Mrs. Lena Osborn, Miss Belle Hyman, Miss Mary Maloney, Miss Kate McComsky, and Messrs. James O'Connor, J. K. Davis, John Peardon and J. B. Curtis.

Mr. King is a blind young man who is perhaps known by more people than any other person in Kansas City, Kan. He has lived in that city nearly all his life and was educated there. He is energetic to an unusual degree, and he writes letters on a typewriter almost as skillfully as a trained operator who can see.

"I propose establishing a colony to assist energetic blind people who are willing to help themselves," he said to a reporter of the Kansas City Star the other day, "and I mean to do it without the intervention of 'class legislation,' as our statesmen are pleased to call such legislation as they have given to sightless people.

"I realize," he said, after some reflection, "that the broom industry is only in its infancy, and hundreds of blind men may be employed yearly in this industry. It is my intention to establish such a colony if I can only have the cooperation of the blind people and their friends. I have, in my blind condition, worked in the broom corn fields from the time the seed is planted until it was cured and seeded, baled and sorted and made into as fine brooms as ever adorned a show window. I know that other blind people can do and are doing the same thing, and I can see no reason why such a project cannot be carried out. With plenty of fine broom corn land to be bought in Kansas at a low price and as good a market as can be found anywhere there is no reason why it should not succeed."

THE NATHAN LEWIS HATFIELD PRIZE FOR ORIGINAL RESEARCH IN MEDICINE.—The College of Physicians of Philadelphia announces through its Committee that the sum of five hundred dollars will be awarded to the author of the best essay in competition for the above prize.

Subject: "The Relation Between Chronic Suppurative Processes and Forms of Anaemia."

Essays must be submitted on or before March first, 1903.

Each essay must be typewritten, designated by a motto or device, and accompanied by a sealed envelope bearing the same motto or device and containing the name and address of the author. No envelope will be opened except that which accompanies the successful essay.

The Committee will return the unsuccessful essays if reclaimed by their respective writers or their agents within one year.

The Committee reserve the right not to make an award if no essay submitted is considered worthy of the prize.

The treatment of the subject must, in accordance with the conditions of the Trust, embody original observations or researches or original deductions.

The competition shall be open to members of the medical profession and men of science in the United States.

The original of the successful essay shall become the property of the College of Physicians.

The Trustees shall have full control of the publication of the memorial essay. It shall be published in the Transactions of the College, and also when expedient as a separate issue.

Address J. C. Wilson, M. D., Chairman,
College of Physicians,
219 South Thirteenth Street, Philadelphia, Pa.

One of the most remarkable scientific investigations of modern times is now being brought by Dr. Lindsay Johnson, F. R. C. S., to the close of its earlier stages.

Some years ago he began to examine the fundi of animals and betook himself to Jamrach's collection of animals, and other menageries, and found the macula lutea present in monkeys, but that it varied with each genus. Following up his clew, he discovered that every family of the mammalian order possessed a distinct appearance of its own in the eye, by which any one seeing the fundus with an ophthalmoscope would be able to recognize not only the family but the genus of the animal. He then proceeded systematically to examine all the animals to be seen in the Zoological Gardens of London, Antwerp, Amsterdam, Hamburg, and elsewhere; and as a result of this gigantic labor he found many new and striking facts. For instance, he realized that certain organs, such as the pecten, was also to be found in a large number of the lower mammals—rodents and marsupials. This, of itself, was an interesting piece of evidence in support of the Darwinian doctrine of evolution; his various discoveries are to be found recorded in the proceedings of the Royal society. His method of investigation is interesting. To examine the eyes of the animals it was necessary for Dr. Johnson to darken the cage, to sit beside the animal with a lamp behind his head, and to look through the ophthalmoscope at a distance of half an inch from the animal's eye, for a period of not less than two hours at a time. The total time spent over each animal would vary from eight to sixteen hours. He examined the eyes of about a thousand animals, and made drawings of about 250, some fifty of which have so far been published by the Royal society. In the cases of the larger animals it was necessary to confine their movements. Thus the elephants were chained down. Sacks some eight feet long were made for slipping over the bears. The closed ends of the sacks were next slit with a knife, and as bruin protruded his head he was promptly muzzled and lifted on to the table for the eye testing. In the cases of lions, leopards, tigers, and large cats, muzzles could not be used, as they frightened the animals nearly to death. He found it advisable to cut off the whiskers of the brutes, as the touching of the whiskers during the examination made them snap. Some of the birds were induced to thrust their bills into large corks, and the fishes had to be treated gingerly to avoid their suffocation. The boa-constrictors and pythons were thrown into sacks, to circumvent their squeezing propensities, and their heads were held out of the sacks by keepers; while with wolves, beavers, otters, seals, and sea lions, nets were thrown over them, and they were twisted in the meshes.

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ORIGINAL ARTICLES.

THE TREATMENT OF CONGENITAL LENS DISPLACEMENT.

BY L. D. BROSE, M. D., PH. D.,
EVANSVILLE, IND.

Oculist and Aurist St. Mary's Hospital.

Perhaps the relation of some cases as they are met and dealt with in practice will lend interest to this paper and illustrate the importance of this subject. On April 1, 1898, I was consulted by Mrs. J. B., aged forty four years, because her sight, which is limited to the left eye, has failed rapidly during the past two months. She states she has always seen poorly in the distance and four years ago completely lost the sight in the right eye through a violent attack of pain, for which the physician she consulted said there was no remedy. The cause of the blindness in the right eye was apparent at once; the lens having become displaced into the anterior chamber, became adherent to the cornea, where it had undergone calcareous degeneration. In addition there was equatorial staphyloma, the result of glaucoma, occasioned by the displaced lens. Light perception was extinguished and the eye has long since ceased to pain or trouble her. The left iris was tremulous and with the ophthalmoscope the left lens was found displaced upward and somewhat outward. To the outer side of the optic disc there was a large crescent; otherwise the fundus was without detectable lesion. She counted fingers at fourteen feet and read Sn D=1.5 at seven inches. With — 3.0 ⊃ — 1.0 cyl. ax. 80° vision became $\frac{15}{\text{clx}}$. This lens was prescribed and she was instructed to report at once in case the seeing eye became painful or rapidly lost sight. On July 30, 1898, the eye began to pain her and by the following day it became so violent that she had frequent attacks of vomiting. Without further delay she left her home in a neighboring town and consulted me about noon of July 31, when I found the following condition: Intense circumcorneal injection and the eye exceedingly painful. The pupil was dilated and distorted and so occupied by the lens that the iris above was pushed forward and upward, while the portion below the pupil was pushed backward and downward. The lens, still in its capsule and perfectly transparent, was in contact with the posterior layer of the cornea. A hypodermic injection of morphine was administered and the patient sent to St. Mary's Hospital, where during the afternoon, and after chloroform anæthesia, the lens was removed piecemeal with a Weber scoop, through a downward and outward section of the cornea. Before making the corneal incision it was deemed best to secure the lens upon a needle passed through the ciliary body from the temporal side, to guard against its escaping into the vitreous chamber should there be loss of vitreous while attempting the lens delivery. The eye healed rapidly and without complication, with a resulting vision of $\frac{15}{LX}$ with − 13.0. In two of four children belonging to this woman, both girls, of fourteen and sixteen years, respectively, examined by me May 19, 1898, ectopia lentis was found in the two eyes, upward and outward. The vision in the younger was O.D. $\frac{9}{cc}$ O.S. $\frac{9}{cc}$ and in the older O.D. $\frac{12}{cc}$ O.S. $\frac{15}{cc}$. With correcting lenses the one saw O.D.—2.5 $\frac{15}{CL}$ O.S.—2.0 $\frac{15}{LXXX}$ and the other O.D.—5.0 $\frac{15}{CL}$ O.S. 5.0 $\frac{15}{C}$ These lenses were ordered for constant wear and it was recommended that both have the operation of discission performed. This advice has not been acted upon. On May 28, 1898, the forty-three-year old brother of the woman who had undergone a lens extraction consulted me because of defective sight. He stated that about two years ago the right eye pained him for a time and then the sight in it in a day or two became very poor. I found the lens lying upon the floor of the posterior chamber, the portion of the iris below the pupil bulging, while the iris above the pupil stood deeper and was tremulous. Both the cornea and vitreous contained opacitics and the vision in the eye was limited to counting fingers at seven feet. By depressing the patient's head and placing a + 10. lens in front of the eye he saw $\frac{15}{C}$. In the left eye the lens was displaced upward and outward and he had vision $\frac{15}{L}$. With — 0.5 cyl ax 180 he saw $\frac{15}{XXX}$. This lens was given to him and in addition he was instructed to report at once in case either eye became painful. On Nov. 24, 1900, he became aware that he was rapidly losing his sight in the left eye and that he recognized the faces of those about him in his room with difficulty. By the following day the eye pained him so violently that he had repeated attack of vomiting. Since he lived in a neighboring town he decided not to put off seeing me any longer, and so took the evening train, reaching my office about ten o'clock at night. I found the eye intensely injected and the lens blocking the pupil and crowding the iris forward against the cornea, so that the anterior chamber was almost wholly obliterated. He could still count fingers at eight feet. A hypodermic injection of morphine was administered and the patient sent to St. Mary's Hospital, where during the night the interne was obliged twice to repeat the injections to control the patient's suffering. During the forenoon of Nov. 26 ether was administered and, with a Von Graefe cataract knife, the anterior chamber was opened and an iridectomy made upward. The operation was highly difficult because of the wish to avoid wounding the lens or its capsule. After the second day eserine was instilled daily into the eye. The lens withdrew itself into the hyaline fossa and the eye healed rapidly, attaining a vision of $\frac{15}{\mathrm{XXX}}$ with + 16. An only child of this man, a young woman twenty years of age, was examined by me Dec. 1, 1902, and found likewise afflicted with congenital lens displacement upward and outward in both eyes. Her vision is O. D. $\frac{15}{\mathrm{CL}}$, O. S. $\frac{15}{\mathrm{XX}}$, With the following correcting lenses O. D. + 1.0 cyl ax 90 $\frown$ — 2.0 cyl ax 180 $\frac{15}{\mathrm{XX}}$ O. S. + 0.5 cyl ax 180 $\frac{15}{\mathrm{XV}}$. My experience with these and other cases leads me to make the following deductions as to the treatment of ectopia lentis:

First, try with the aid of properly adjusted lenses to bring about vision satisfactory to the needs of your patient.

Second, failing this way, determine by the help of a mydriatic and a stenopaic disc whether a small iridectomy will give a satisfactory vision, and if so make it.

Third, and especially if the patient is under thirty years of age, do a discission operation. Over thirty years of age it is better to extract the lens because of the danger of secondary glaucoma after discission. It is my rule at the first consultation to instruct the patient that this condition has a tendency with time to grow worse and that should the sight rapidly fail or the eye become painful he is to report to me at once.

AN ADDITIONAL CASE OF CONICAL CORNEA, IN WHICH VISION WAS IMPROVED BY CONVEX CYLINDERS.

BY CASSIUS D. WESCOTT, M. D., AND BROWN PUSEY, M. D.,
CHICAGO.

The fact that a number of cases of conical cornea have been reported recently, in which the vision was improved by convex glasses, contrary to the usual experience, prompts us to report the following case:

H. L. S., a clerk, aged 23, presented, December 7th, 1901, complaining of poor sight and crops of styes. He stated that he had been complaining for eight years, and had worn glasses for seven years, which had never been quite satisfactory. The conjunctiva was hyperemic. There was nothing in the appearance of the eye, as examined by daylight, to suggest conical cornea. L. E. V. = 6-50: R. E. V. = 6-50. The examination with the ophthalmoscopic mirror immediately disclosed the nature of the trouble, and recalled the illustration given by Dr. Jackson in his manual, in treating of this subject[1], except that the apex of the cone was eccentric in both eyes—below in the right and down and out in the left. Under complete cycloplegia with atropin, retinoscopy gave the following results:

L. — 13.00, — 9.00 with Cyl. Ax. 180°.
R. — 13.00, — 7.00 with Cyl. Ax. 180°.

The ophthalometer showed very well the great distortion of the cornea, but the results were of no assistance in arriving at a correction. The patient accepted the following lenses:

L. — 6.50, — 6.00 Cyl. Ax. 170° V. 6-15 —.
R. — 3.00, — 2.50 Cyl. Ax. 180° V. 6-15 —.

The vision was sharpened materially by the use of a stenopeic disc with an aperture of 2½ m.m.

After the passage of the mydriasis, better vision was obtained with the following cylinders, which were prescribed:

L. + 6.50 Cyl. Ax. 25° V. 6-15.
R. + 4.00 Cyl. Ax. 150° V. 6-15.

After wearing the glasses some weeks, the patient reports that they are worn constantly and with comfort, and that his vision is perfectly satisfactory for all purposes.

31 WASHINGTON STREET.

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[1] Diseases of the Eye, Edward Jackson, 1900, p. 310.

THE CLINICAL AND PATHOLOGICAL REPORT OF A CASE OF FOREIGN BODY RETAINED IN AN EYE FOR TWENTY-SIX YEARS.

BY BURTON K. CHANCE, M. D.,

An Assistant Surgeon at Wills' Hospital,
Philadelphia.

The entrance of a foreign body into the vitreous usually excites violent inflammation, by which the eye is destroyed. In exceptional cases, it happens that a foreign body is tolerated, so that it may be seen for years, either free or enveloped in an exudate, within the otherwise clear vitreous. The tolerance varies and the effects are uncertain; therefore, the presence of a foreign body in the vitreous is always a menace to the integrity of the eye. The absence of any signs of inflammation does not negative the prognosis; latent micro-organismal infection may become active at any period, or, slow degenerative changes may ensue through the oxidation of the metallic foreign body, and the elimination of salts which act as irritants to the delicate tissues. These changes so reduce the reconstructive forces of the tissues that the organ is easily affected by a traumatism or profound systematic disturbance such as is usually readily resisted by hitherto healthy eyes; it cannot withstand the onslaught and the eye is lost.

An interesting case in point, occurring at Wills' Hospital, in the service of my chief, Dr. Schwenk, is shown by the following history. In this we found that a man had received an injury to one of his eyes, with the probable retention of a foreign body, which had remained apparently inactive for twenty-six years, when, after an injury to the cornea, the eye failed to regain its usual health. After the positive location of the suspected foreign body, the eye was enucleated. The histologic study of the tissues shows that the immediate effects of the recent injury were unusually pronounced, owing to the degeneration of the retina and the choroid, brought about by the prolonged retention of the foreign body.

On 23d December, 1899, W. F. B., aged 35 years, a smith, applied at the Wills' Hospital for the relief of an inflamed right eye. He was assigned to my friend and chief, Dr. Schwenk, to whom I am indebted for the privilege of presenting this report. The man stated that seven weeks previous he had been struck on the right eye by a bolt-head, receiving injuries which were treated by his physician at one of the rolling-mill towns in the interior of this state. This course of treatment was unavailing and because of pain and discomfort with accommodative strain in the fellow eye, without, however, a marked decrease in the visual acuity, he applied for treatment at this hospital.

In 1873, twenty-six years ago, in his boyhood, while standing near the forge watching the sparks, the patient was struck in the right eye by a chip of flying metal. He always believed this had entered the globe, though a foreign body had never been located therein. After a while the inflammation subsided and the eye remained quiet until the receipt of this recent injury. The man declares that, in all these years, while the sight had been defective, he had had good peripheral vision and has been in no way incapacitated for work; and at no time had he experienced pain in either eye.

There was only light perception remaining in the right eye, while the vision of the left eye was equal to $\frac{5}{10}$. An erythematous rash was noticed over the upper portion of the face; this, the patient stated, was due to the solution he had been using in his eye. The condition of the injured eye was as follows: A slight edema of the lids accompanied marked congestion of the conjunctiva. At the summit of the cornea was a large abscess confined to the deeper planes. The anterior chamber was shallow and free from exudate, the pupil was pyriform; in the outer lower quadrant of the cornea was an old cicatrix in which the iris had became incarcerated. T + 1.

Under cocain anesthesia, with a von Graefe knife, the cornea was slowly bisected through the abscessed area at about three millimeters from the lower limbus, the tough slough extruding with the escape of the aqueous. The iris was apparently unchanged in its position. After the dressing of the wound, atropia was instilled repeatedly and ice compresses were applied constantly. The condition of the eye did not improve. From this lack of success, the possibility of there being an old foreign body in the eye, now became a certainty. Accordingly, on the 30th December, the patient was sent to the Pepper Clinical Laboratory to have the eye radiographed. The negative demonstrated clearly the presence of a foreign substance in the posterior inferior quadrant of the vitreous body. By this time the cornea had become more extensively infiltrated, the anterior chamber lessened in depth, while the iris was greenish in tint and an exudate was filling in the pupillary space. Immediate enucleation was advised, and the patient readily consented. The globe was enucleated without accident under general anaesthesia. On 4th January, 1900, although the socket had become quite edematous, the patient, at his own request, was discharged from the house. The visual acuity of the remaining eye was: Sn., $\frac{5}{7.5}$, Acc. 0.50D 22 — 38 cm. On 17th March, the socket appeared clean, when the glass eye shell was ordered. The left eye had remained free from all disturbing symptoms.

On section of the globe through the equatorial region, the vitreous was seen to be disorganized, yet not purulent; the clear fluid escaping freely caused the retina in the posterior half to collapse into the cavity, except at the lower outer quadrant. Here the membrane and the underlying choroid had become adherent to the sclera by reason of the organization of fibrin surrounding an apparently metallic body embedded therein, measuring approximately four millimeters in its longest diameter. Lines of pigmentation radiated from the foreign mass, the pigment accumulating towards the periphery. At no place in this posterior section was the retina or the choroid the seat of purulent exudation processes. Surrounding the deeply cupped optic disk was a clear, glaucomatous halo of a radius of one millimeter; the vessels entered and emerged at the disk in straight lines.

The cornea was quite opaque and exhibited the line of the recent paracentesis and the presence of the earlier cicatrix. The ciliary processes and iris were markedly congested and covered with exudate. Leading out towards the equator, the underlying choroid was infiltrated, while the retina from the ora serrata presented lines of pigmentation similar to those that were noticed in the examination of the posterior half of the globe.

The specimen was preserved in formol and alcohol; the posterior half was mounted in glycerin jelly in a museum cup, while the anterior half was embedded in colloidin for histologic study. The sections were stained with hematoxylin and rosin, and afterwards with carmin and potassium ferrocyanid, for the purpose of studying the probable infiltration of the tissues by the metallic salts which had permeated the tunics during the slow oxidation of the foreign body.

The anterior hemisphere was bisected in the vertical meridian; the stained sections are from the nasal portion and do not contain the line of the old cicatrix with the iridic synechia. The curve of the cornea is abruptly broken by the line of the recent incision; the upper lip of the wound has inclined inwards, the lower, outwards, the gap between being filled with prolapsed iris, exudated products and detritus. At the corneal limbus the vessels are distended and filled with leucocytes, and the tissues are markedly infiltrated with round cells. The epithelium is intact throughout. Near the seat of the abscess the corneal fibers are moderately separated. Extending from the surface of the incised edges into the lamellæ is a mass of round-celled infiltrate. Near the lower angle the fibers are separated and teased; here, beneath Bowman's membrane, is a cyst-like cavity filled with polymorphous leucocytes, the posterior wall being formed by a condensation of the corneal fibers; adjacent to this is a moderate area of infiltration. The posterior surface is wrinkled, yet the endothelium is adherent and not hyperplastic. Some of the sections show clumps of a granular exudate clinging to the endothelium; others show the iris in contact with the cornea.

The anterior chamber is shallow. The iris and the ciliary body with its processes are greatly infiltrated with round cells; in the region of the angles of the chambers numerous cells have wandered out, while a more marked exudation is seen about the ciliary processes. The vessels of the prolapsed iris are surcharged with leucocytes. The filtration angle is singularly free from pressure. The scleral vessels are turgid with leucocytes.

The knife has divided the crystalline lens. The cells of the capsule have undergone a rapid proliferation, the subcapsular cortex has become distended by huge vacuolations and is filled with a granular débris. The intermediate fibers are separated by a round-celled infiltrate, while the nucleus is densely sclerosed, except in its outer layers. In places the iris and capsule are in contact.

In the division of the globe, the relations of the tunics were disturbed by the forcible removal of the vitreous. Near the equator, in some of the sections, there is a large hemorrhagic extravasation between the choroid and the sclera. The choroid is degenerated, the capillaries being obliterated; the few remaining vessels have thickened walls and are filled with leucocytes. The round-celled infiltrate extends from the ciliary region into the choroid. The choroidal stroma pigment is greatly degenerated.

The structures of the retina are in places so condensed that the elemental layers are not differentiated; the granular layers are in many places in close contact and deeply pigmented,—the rods and cones being imbedded in masses of pigment; the ganglion cells are atrophied, while the supporting tissues and the fiber layer are sclerosed. Throughout the retina, especially around the vessel walls, there is much secondarily degenerated pigment, and in some portions the sheet is quite fibrous and contains many pigmented nuclei.

The examination of the sections stained with potassium ferrocyanid shows that the tissues had become infiltrated with iron salts dissolved from the foreign body and are disposed in the following manner. The cornea and sclera are apparently free, but along the vascular channels in the iris, the ciliary processes, the choroid and the retina, there is an extensive blue discoloration. In the outer fibers of the lens nucleus the reaction is also present, while there is a bright bluish-green hue diffused throughout the nucleus.

For the many valuable suggestions offered to me during the preparation of the specimen for pathologic study, I am gratefully indebted to my friends, Dr. Edward A. Shumway, and the late lamented Dr. Thomas S. Kirkbride, Jr.

The study of the history of this case presents the following points of interest: A foreign body is said to have been lodged in the interior of an eye which remains quiet, after the subsidence of the acute, inflammatory symptoms, for twenty-six years. During this long period of time the eye was said to have retained some visual power. A recent injury to the eye excited the development of a corneal abscess which failed to heal despite careful treatment. The course of this inflammatory attack was a more violent one than is ordinarily found in that following a primary injury. The suspected foreign body was localized by means of the Roentgen rays. After the enucleation of the eye the foreign body was discovered to be lying in just the position so accurately defined by the radiograph. The study of the tissues demonstrates that there had been, antecedent to the second injury, a slowly progressive degeneration of the choroid and the retina, with an infiltration of the vascular structures by the metallic salts dissolved from the foreign body.

In conclusion, therefore, in this day of improved surgical methods, when called upon to treat an eye recently diseased, in which there is any reason to suspect the retention of a foreign body, it is incumbent upon us to use all the means of accurate diagnosis at our command. When a foreign body is present it should be removed by such procedures as shall do the least damage to the tissues. Thus shall be avoided the dangers of the acute, or more remote, destruction of the globe, and the possible sympathetic affection of the other eye. In the event of failure to extract the foreign body, or of the refusal to permit enucleation, and although the primary symptoms may abate, an adverse prognosis should be given because of the degenerative changes produced in the delicate structures from the irritation caused by the presence of the detained foreign body.

CURIOUS CASE OF OCULAR INFECTION FROM DUST FROM NEST OF MUD WASP

AND

A CASE OF TRANSPLANTATION FOR INVERTED AND SHORTENED EYELIDS.

BY J. B. TAYLOR, M. D.,
BLOOMINGTON, ILL.

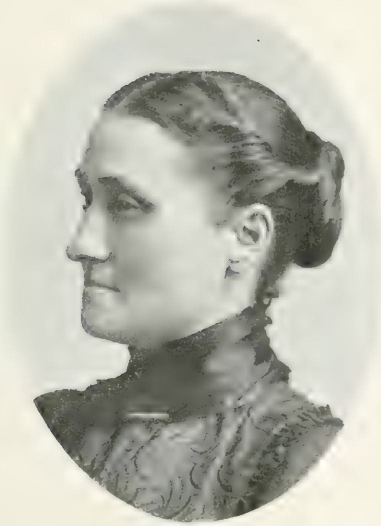
Illustrated.

Two cases in my practice may be of interest, briefly reported,—the one from its singular and unusual source of poisoning, and the other as a confirmation of the decided advantages of transplantation for inverted and shortened eyelids.

Case 1 exhibits the toxic character of the dust from the nest of the mud wasp, when measured by the eye and its absorbents as a delicate test organ, and is, so far as my reading goes, unique in its demonstration. It is interesting as a piece of both human and wasp physiology.

Mrs. S., of a neighboring small town, was sweeping down wasp nests from the rafters of an outhouse on new premises to which family had just moved. Dust from same fell into her eyes. This was followed, not by the usual irritation of a mere foreign body, but by a sharp disturbance which had serious consequences. On top of sharp congestion of eye, there came on the right side marked and disfiguring swelling of face from evident taking up of poison by lymphatics, swelling extending down into neck. This having been successfully carried through by soothing applications, there followed afterwards —with an interval of apparently sound condition—an infiltration and abscess of left cornea which perforated in spite of extreme care, and only reached recovery after two months of appropriate treatment.

The singularity of the case lies in this irregularity of sequence in the symptoms, and in the extreme virulence of the poison which incidentally attached itself to the dirt out of which the nests were made. Study of the wasp family, its anatomy and habits, developed the fact that the sting is a double lance (two shafts) which work in a close-fitting sheath, and that the descent of these shafts mechanically pumps the poison from the sac at their base; and, further, that the sting is used as an ovipositor to place the eggs. This fact readily explains the extrusion of the virus, which clung to the cell walls, and proved its great intensity by the experiment which my patient unwittingly made. The history, in addition to being curious, may warn us what possibilities and struggle may be ahead of us, if we meet with a



Result of wide transplantation to both upper lids.

like case hereafter. The most careful attempts at disinfection and neutralization are certainly called for in the beginning.

Case 2 shows by accompanying photograph results of transplantation from back of each ear to margin of upper lid of corresponding eye, for cure of entropion and trichiasis. Mrs. P. had trachoma in early life, resulting in marked contration and incurving of each upper lid. For eight years previous to operative relief, she had been under the necessity of keeping lids bared of lashes, and subject to all the maddening discomforts of the scratching, the small ulcers, the photophobia, etc., coming from the plowing of the stubs of the incoming hairs in sweeping across the ball. Transplantation has given the permanent results indicated in the photo—lids of natural length and a goodly row of lashes in their natural place.

The object of the report is to add testimony to the fact that transplantation is the only proper procedure in such cases. There is too much resort by operators to the process of merely shortening the anterior surface of the lids in such affections. This leaves a lid too short on both surfaces—totally short. It is the equivalent of lengthening a man's leg by cutting off the other one. Internal cicatricial contraction relieved by external cicatricial contraction is not the logical process; and it is singular that as clear as is this statement, and as simple as is the method of transplantation, and as calculable as are the results under good technique and rigid antisepsis, our ophthalmic workers (barring the most advanced) need constant warning on the one side in this field, and constant encouragement on the other. Quick healing, good cosmetics, and the element of *restoration*, all plead for the transplantation process.

Ichthyol, according to *Rev. de Ther*, has been employed in the treatment of trachoma. It is used in the form of instillations as follows:

℞	Ichthyol	ʒ ii	7|50
	Glycerini	℥ ss	15|
	Aquæ destil q. s. ad................	℥ ii	60|

M. Sig.: Drop into the eye once or twice daily, first anesthetizing the conjunctiva with cocaine.

SYPHILITIC ULCER OF THE EYE LID.*

WM. CAMPBELL POSEY, M. D.

Professor in Ophthalmology at the Philadelphia Polyclinic and School for Graduates in Medicine; Ophthalmologist to the Howard Hospital.

Illustrated.

B. D., female, aged 52 years, presented herself at my service in the hospital on 11-23-'01, on account of an inflammation of her lower right eye lid, having been referred from the surgical dispensary of the same institution. It was elicited that the patient had been in constant attendance at the surgical clinic since May last, on account of a running sore on her head, but that the eye manifestation did not appear until the early part of October. She said that the inflammation began as a small lump like a stye upon the lower outer margin of the lid, and that after three weeks this lump became inflamed and a small open sore appeared on the inner part of the lid. This area spread rapidly, and as the integrity of the lower lid seemed to be in danger, she was referred by the surgeons in the dispensary to the eye department for treatment.

Examination showed the lower lid of the right eye to be involved in an ulcerous process, which extended from a point about 4mm. from the external commissur of the lids to the junction of the outer and middle 1-3 of the lid. The ulcer had entirely destroyed the margin of the lid; skin, cartilage and conjunctiva alike having disappeared in the process of inflammation. The edges of the ulcer were clean cut but indurated and its bed was filled in with white necrotic tissue. The conjunctiva of the eye-ball was slightly injected, but there was no further evidence of inflammation in the eye or its adnexa on either side. The patient complained of but slight pain in the lid and there was but slight tenderness to the touch.

The patient is a hale, strong woman, the mother of seven children, five of whom are living and well. She has had no miscarriages and it is impossible to obtain information in respect to the occurrence of a primary sore. Her youngest child is 17 years old.

Taken in conjunction with the necrosis of the skull, and its characteristic appearance, the nature of the ulcer seemed clearly to be of syphilitic origin, and she was accordingly given an antiseptic wash for the lid and was sent back again to the surgical dispensary with the request that the specific treatment she was receiving be pushed.

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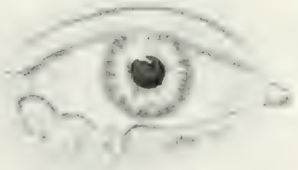
*Presented at the Section on Ophthalmology, College of Physicians of Philadelphia, December 17, 1901.



Syphilitic Ulcer of the Eyelids.

Notwithstanding this, however, the ulcer continued to spread and it was not until an application was made twice daily of iodoform ointment and the dose of the mercury and potassium iodide was doubled, that the process was controlled.

As you will see, as is well shown in the accompanying illustration, kindly made for me by Dr. W. C. Swindells, the entire outer one-third of the margin of the lid has now been entirely destroyed. The ulcer is limited upon the skin surface by a sharp line of demarcation, while upon the conjunctival surface the line is broken and irregular. The conjunctiva of the lower lid is thickened and roughened, but the bulbar conjunctiva is unaffected.

Syphilis of the lids is a rare affection, and though I have not had an opportunity of verifying the statement by consulting authorities and statistics, yet I am inclined to think that secondary and tertiary ulcers are less common than the primary sore; such, at leaost, has been my own experience in a large and varied clinical service. The diagnosis of secondary and tertiary ulcers should not be difficult, although in the initial stage there might be a question as to its true nature. As in the case which I have just reported, the ulcerous stage may be preceded by a gummatous infiltration of the lid, which may resemble a stye, or in other cases the initial process may take the form of small prominences like chalazia, which rapidly break down into ulcers. Hirschler, who has written an excellent monograph upon the subject, will have it that the scar, which attends the healing of the process is pathognomonic of syphilis, for he claims that no other condition will occasion the same sharply outlined concave streak of cicatricial tissue.

Bicknell, in a paper on "Dental Affections and the Eye," notices first the infectious disorders which travel upward to the orbit by a continuity of tissue, and reports two cases of orbital abscess from this cause. Neuroses are considered under the following heads: Reflex irritation affecting the striated and unstriated muscles; reflex irritation affecting the mucous membrane; reflex irritation affecting the retina, optic nerve and intraocular tissues. Each of these with their subdivisions are remarked upon. The literature, of course, is large, since almost everything has been attributed to teething.

A NEW OPHTHALMOSCOPE.

COMBINED WITH WHICH THERE IS A PLANE MIRROR FOR RETINOSCOPY; INTENDED AS A POCKET INSTRUMENT.

BY BROWN PUSEY, M. D.
Formerly House Surgeon New York Eye and Ear Infirmary.
CHICAGO, ILL.

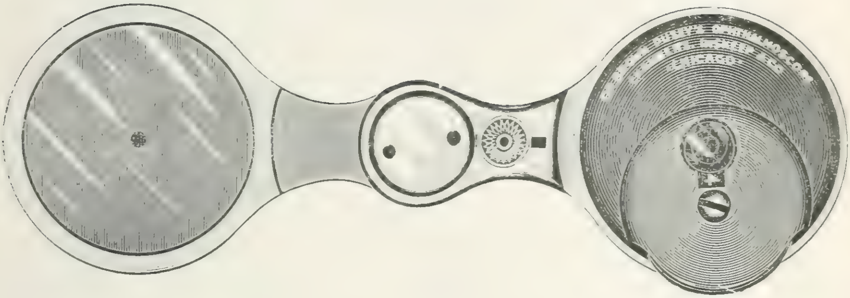
Illustrated.

Every ophthalmologist realizes the fact that he should always have an ophthalmoscope ready at hand. To have such an instrument always at hand, it must be carried in one's pocket, and an ophthalmoscope that can be conveniently carried in one's pocket must be small and compact and not heavy. The ophthalmoscope offered is such an instrument.

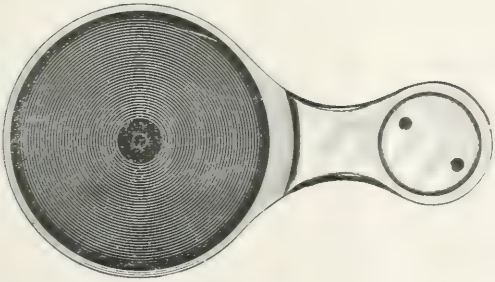
The instrument consists of a frame with two arms, which swing on a hinge-joint. The arms carry two mirrors, which are so placed that when the instrument is closed the mirrors lie face to face, and are thus protected from injury and dirt. When the instrument is open one arm acts as a handle for the other. In the joint there is a spring bolt, which fastens the joint tightly when the mirrors lie face to face, and also locks the joint when the instrument is open; this spring bolt is loosened by pressing a little knob. The arms are nickel-plated; on the outside this plating has a high polish, on the inside it has a dull finish, so that this metal part will not reflect light. The parts which form the backs of the mirrors are lacquered black.

The mirrors are circular, with a diameter of 1 3-16 inches; the concave mirror has a focal length of 11 inches. Back of the concave mirror, a wheel is placed in which there are five lenses, a + 2 D., a + 4 D., for use in making examinations by the indirect method, a + 8 D. for use in examining on levels in front of the retina, a — 3 D. for the student, who accommodates when making a direct examination, and a — 10 D. for examining myopes; there is also a hole in the wheel. The silvering of the mirrors at the center is removed in a circular space of 3-32 of an inch in diameter; this arrangement was observed particularly because of the advantages offered by such mirrors for retinoscopy.

The completeness of the instrument will suggest itself. It is not a refracting ophthalmoscope with its many combinations of lenses, and, indeed, who in the present day of accurate refraction wants a refracting ophthalmoscope? The instrument is not intended to take the place in the ophthalmologist's office of his Morton. It is so com-



Open



Closed.

pact that it weighs less than two ounces; it is ¼ inches thick, 2⅜ inches long when closed. It is solid, substantial and of neat finish, and can be sold at a very low price. The instrument is made by Chambers, Inskeep & Co., of Chicago.

I.—SIMULTANEOUS PARETIC MYDRIASIS, SUBLUXATION OF THE LENS, AND RUPTURE OF THE CHOROID, WITH MARKED INVOLVEMENT OF THE RETINA; II.—A PECULIAR FORM OF PERSISTENT PUPILLARY MEMBRANE.

BY A. DUANE, M. D.,
NEW YORK.

Illustrated.

1. Paretic Mydriasis, Subluxation of Lens, and Rupture of the Choroid.—As an addendum to Dr. de Schweinitz' case, reported in the May number of THE OPHTHALMIC RECORD for 1901 and to my own reported in the August number, the following may be of interest:

Isador G., aged 17, came to the Cornell Medical College Dispensary on January 27, 1902. Six months ago was struck in the right eye with a stone. Sight at first completely lost, but afterward returned in part, although still a spot appears to come between him and everything he looks at.

Linear scar over outer part of right eyebrow. No evidence of fracture of bone.

Right pupil from 5 to 6 mm. in diameter. Its edge shows several fine notches, and its pigment border is less evident than in the left eye. Lying free in the pupillary area is a shred of iris pigment, and there are two faint stripes of opacity on the anterior capsule of the lens. Right pupil contracts to light (direct reaction slight, consensual reaction more marked), and contracts well in convergence, even when left eye is shaded. Left pupil, which is from 3 to 4 mm. in diameter, shows well-marked reaction to light (direct and consensual) and in convergence.

There is a slight subluxation of the right lens, the inner edge of the latter being visible behind the nasal border of the pupil, when ophthalmoscopic examination is made of the extreme nasal fundus.

In the right eye, skirting the nasal and upper borders of the disc, is a yellowish rupture of the choroid (Fig. 1), traversed by several unaltered retinal vessels. The rupture is not bordered by pigment, but several pigment granules lie within it, and near its upper end a clump of pigment overlies both it and a retinal vein that crosses it. Otherwise there is no abnormality visible in the nasal portion of the fundus.

The optic disc shows a well-marked pallor in its nasal half; otherwise appears normal.

Extending from the temporal side of the disc is an irregular, pretty well defined area, about two disc-diameters in breadth, of paler red than the adjoining fundus, and giving the impression as if the pigment epithelium and the superficial layers of the choroid had been removed. This area is crossed by a retinal vessel. No choroidal vessels are laid bare within it.

Far out in the temporal fundus is a group of faint atrophic patches.

V: R with + 1.00 D, $\frac{20}{200}$; L with + 3.00 + 0.75 cyl. 105°, $\frac{20}{40}$ +. This represents an undercorrection of his hyperopia of rather more than 1 D.

The field (see Fig. 2) shows a marked temporal contraction, and there are two large and several small scotomata. There are no obvious lesions of the fundus corresponding to the latter. Nevertheless, these and also the contraction of the field indicate that some severe disturbance of the central and nasal portions of the retina or of the vessels supplying them was produced by the original injury. This fact is further evidenced by the abnormal pallor of the optic disc.

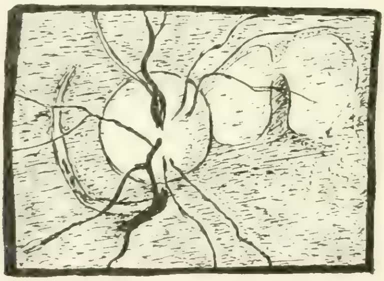


Fig. 1.

Although there is a faint central scotoma, tests made with vertical and horizontal parallel lines show that there is no central metamorphopsia.

The case recalls an interesting one reported by Dr. A. C. Palmer of Richmond, Va. (*Virginia Med. Semi-Monthly, Jan. 27, 1899*). A boy, 14 years of age, was struck in the eye with a flying chip of steel. Three months later, condition as follows: Pupil dilated ad maximum and irresponsive to light, but contracting readily under the influence of eserine. Perfectly round, with no adhesions. Extending downward and inward from the nasal side of the optic disc, and projecting some way into the vitreous, is a triangular, semi-transparent, whitish mass, which tapers off at its distal end into a black line. Above this mass and close to the disc, is a round dark spot. Judging from the description and from the original drawing, which Dr. Palmer was kind enough to send me, the condition was one of retinitis proliferans

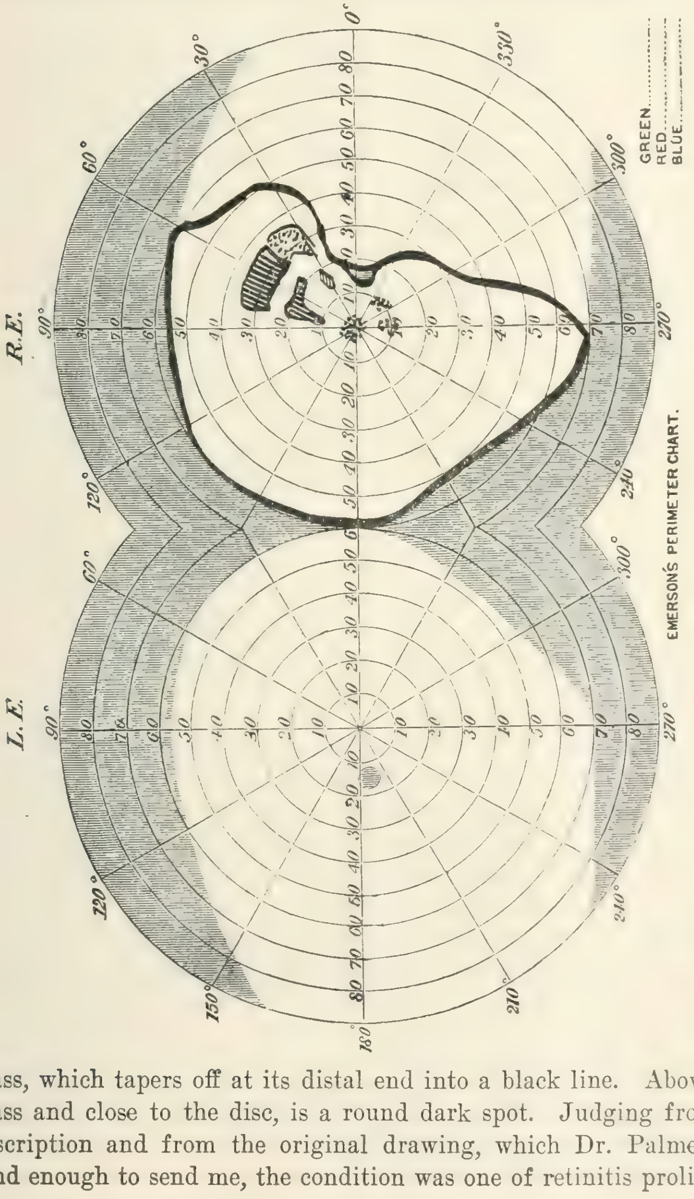


Fig. 2. The dark line shows the limit of the field. The dark shaded areas represent absolute scotomata, and the dotted areas relative scotomata. Test object a paper disc 8x5 min.

starting from a hemorrhage close to the disc. This hemorrhage was doubtless caused by the rupture of either a papillary or a cilio-retinal vessel; the rupture being produced along with the paretic mydriasis at the time of the original injury.

It is noteworthy that in Dr. Palmer's case both the vision and the accommodation were normal.

Since writing the above I have seen a third case of the kind, occurring in a man of 28, whose eye had been struck with a stone six months before. Conditions: Moderate mydriasis (pupil still reacting to light; no notching of pupillary margin); vertical rupture of the choroid skirting the nasal side of the disc and traversed by unchanged retinal vessels.

II.

A Peculiar Form of Persistent Pupillary Membrane.—Julius R., aged 38, came Aug. 9, 1901, to the Ophthalmic and Aural Institute, suffering from a dacryocystitis in both eyes. On the inner side of the right pupil, jutting out from behind the edge of the iris is a small white circular patch. Attached to this patch is the pointed end of a tongue-shaped projection (Fig. 3), which is apparently made up of iris tissue, and which arches over the edge of the pupil to be inserted by a broad base into the anterior surface of the iris some distance from the pupillary margin. The projection simply bridges the pupillary zone of the iris without being attached to it. Under homatropine (Fig. 4) the pupil dilates normally, the pupillary margin retracting freely underneath the projection, which in no way interferes with the play of the iris.

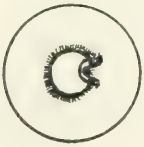


Fig. 3.

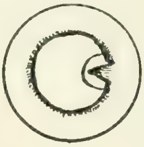


Fig. 4

The eye in other respects is normal.

One observer who saw the case suggested that the projection was simply an ordinary synechia which had proliferated at its extremity, forming a patch of connective tissue. This view seems negatived (a) because the pupil dilated perfectly, which it would not have done if bound down by a synechia as broad and firm as this; (b) because the projection originated from the circulus minor of the iris, and had no connection with the pupillary margin.

THE
OPHTHALMIC RECORD
A MONTHLY REVIEW OF THE PROGRESS
OF OPHTHALMOLOGY.

VOLUME XI, No. 3. CHICAGO, MARCH, 1902. NEW SERIES.

EDITORIAL.

THE ANNUAL REPORT OF THE NEW YORK EYE AND EAR INFIRMARY.

The eighty-first annual report of the Board of Directors of the New York Eye and Ear Infirmary—for the year 1901—contains some facts of unusual interest.

In the dispensary 49,449 new patients were received; there were admitted to the hospital 2,449 patients. Of the new dispensary patients 31,644 were eye cases, 10,244 were new ear cases, 7,727 were new throat and nose cases.

In the eye department there were 4,041 operations; in the ear department, 1,378 operations, and in the throat and nose department, 2,581 operations.

Of the eye operations there were 166 operations for uncomplicated senile cataracts; 109 of these operations were simple extractions, 59 were extractions with iridectomy. A consideration of these latter figures will cause one to conclude that the surgeons of the infirmary have not too enthusiastically adopted the method of simple extraction. The surgeons of the infirmary become very skillful as cataract operators, and they do their operations in an institution where the patients can be most carefully handled, and where they are under the absolute charge of the surgeon—where, if the surgeon finds a prolapsed iris at the end of twenty-four hours and it is necessary to give a general anæsthetic to excise it, it can be done without causing a hubbub; considering these facts, and remembering that at the infirmary last year the cataract extractions were done without iridectomy in only two-thirds of the cases, the oculist will pause before doing a simple extraction on a private patient. This report shows ten iridectomies for prolapse of iris after cataract extraction.

Among other interesting operations, there were nine for the removal of the lens in high myopia; there were four for release of iris incarcerated in corneal wounds; there were nineteen iridectomies for acute inflammatory glaucoma.

In the classification of operations on the globe there were recorded six for intraocular tumors; this includes the enucleations for both gliomas and sarcomas, and probably represents a large share of cases of this character that were seen among the 31,644 new eye cases; of course, a small part of such cases will refuse to allow operation. Granting that all of these cases were sarcomas—to make the largest ratio possible—it is very interesting to compare these figures with those given by Dr. Marshall,* showing the number of uveal sarcomas operated on at the Royal London Ophthalmic Hospital (Moorefield's) in the period between June, 1891, and September, 1898. In this time there were fifty-eight cases or, in round numbers, eight cases per year. As is well known, Moorefield's runs from 25,000 to 30,000 new cases per year; so, it may be considered that the eight cases per year were found among from 25,000 to 30,000 patients. In such a comparison we find that the proportion of cases of uveal sarcoma found at these two institutions is very nearly the same. Considering these figures, it is also interesting to contrast the figures usually given to show the comparative frequency of uveal sarcoma. Arlt* found twenty-seven sarcomas in 54,673 eye cases; Knapp, † thirteen sarcomas in 22,973 cases; Holmes,* nineteen sarcomas in 20,000 cases; Hirschberg,* three sarcomas in 8,511 cases; and in Fuchs' total number of 137,545 patients, there were ninety-one sarcoma cases. It will be seen that these observers found relatively more sarcoma cases than the records of the infirmary and Moorefield's show, and the conclusion seems fair that, possibly, we have heretofore considered that uveal sarcomas occurred relatively more frequently than they do.

In the ear department there were 199 operations for acute mastoiditis, and in the throat department one finds the diagnosis of adenoid vegetations made in 1,052 cases, and there are recorded 826 operations for adenoids. The figures indicating the number of operations for mastoiditis and for adenoids speak for themselves, and are a good index of the character of work that is being done in these departments.

This report records the fact of the opening of the Platt Pavilion erected for the reception and treatment of cases of ophthalmia. During the eight months that it has been open eighty-two patients have been treated; of these forty-three were cases of ophthalmia neonatorum. These cases were treated without the loss of a single eye.

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*Royal London Ophth. Hosp. Reports, 1899, Vol. XV.

†Cited by Fuchs: Das Sarcom des Uvealtractus. 1882.

The report of the President of the Board of Directors says that there is usually a deficit in the treasury, and then states that this deficit has been met by voluntary subscriptions on the part of the Board of Directors, and that no debt has been allowed to stand long. Then comes the remarkable statement that: "This has been and always will be the policy of this Board." In other words, this institution, although largely endowed, has a Board of Directors whose policy it is to run the place in debt, and then voluntarily, from their own means, pay the debt. Words in praise of such a Board are hardly necessary.

In the Directors' report for 1900, it was recorded that money was needed to build a new aural pavilion. After we have read of the policy of the Board of Directors, it is not surprising to find that, in answer to the statement of the need for an aural pavilion, one of the Directors, Wm. C. Schermerhorn, Esq., has supplied the necessary money. Mr. Schermerhorn has given $75,000 for the purpose of erecting such a building; this building will be put up immediately. Following the statement that the money had been supplied for the aural pavilion comes that of the need of money to equip a more commodious laboratory, and one finds himself wondering who will have the good fortune to supply the money for this purpose. One of the Directors will probably do this, and in so doing will have the opportunity to endow a laboratory in the best institution in this country for such work.

Among other gifts to the Infirmary during the last year are to the library 1,000 volumes from Dr. H. D. Noyes. This gift, by the way, probably makes this library one of the greatest of store houses for rare old books on the subject of ophthalmology.

In fitting terms the death of Dr. Noyes is recorded. It is proper that extraordinary language be used when the Board of Directors of this institution records the death of Dr. Noyes. He probably gave more of his time and thought to this institution than did any other man, and there is really no way of estimating how much the building up of this hospital is due to his efforts.

The profession will hear with interest of Dr. Asch's withdrawal from active work, and will wish for the doctor many years yet of usefulness.

BROWN PUSEY.

REVIEWS.

Syphilis, Tertiare Venereal Ocular Affections.—Prof. Istvan Csadopi. The author's abridgement. Translated from the *Wochenschrift fur Therapie und Hygiene des Auges,* Jan. 23d, 1902:

"1. *Syphilis of the Lids.*—Disintegration of a gummatous tumor of the lid will produce a tertiary ulcer that may lead to total destruction of the part, leading to bright white scars, absence of eye lashes and deformity."

The author here narrated a case that he reported before the Society of Physicians:

"F. E., aged 21 years, clerk, came to the office with his right eye presenting the picture of chalazion. The right lower lid was red and swollen, but painless. It was soft to the touch. A yellowish mass showed through the conjunctiva like the purulent contents of a stye. On opening and curetting with Csadopi's curette neither pus nor gelatenous material was evacuated but rather a disintegrated mushy substance. The wound did not heal, but was transformed into a lardacious ulcer which did not cicatrize until after several weeks. Besides the first diseased spot there developed a second and third focus that ruptured of themselves spontaneously and formed a deep funnel shaped ulcer which was covered with a thick brown scab. The ulcer was cauterized with a 2 per cent solution silver nitrate and covered with a 5 per cent white precipitate ointment. The part was not entirely healed for five months. The palpebral border is seamed with a bright white scar and the lashes are lacking.

"The patient was syphilitic, had taken the inunction treatment, but was run down, and his physician had to order syr. iod. iron for him instead of mercury, which prescription I also followed.

"A much milder case was that of J. H., a commercial traveler in whom this affection appeared in the right upper lid.

"Hirschberg was the first to describe the tertiary ulcer of the lid, Crossmann described another form of reddish brown nodule the size of a hazelnut, which later suppurated. Rona extirpated a gummatous neoplasm, which increased from the size of a bean to that of a pigeon's egg and then suppurated. Alexander describes two cases of tarsitis syphilitica, and also a rupia of the palpebral skin."

"2. *Gumma of the Conjunctiva.*—Gummatous ulcer of the conjunctiva is very rare. Ottava describes a case of lardacious ulcer of the palpebral conjunctiva in a patient suffering from chronic iritis. Alexander saw a gummatous neoplasm of the ocular conjunctiva.

"3. *Syphilis of the Sclera.*—The sclera is not always immune to syphilis, as was at one time assumed; nevertheless it is very seldom observed. Frequently occurring gumma are developed in the sclera or gummata of the ciliary body perforate it.

"The etiology of genuine episcleritis is even yet dark, but it may be assumed that episcleritis occurring in syphilitics is of syphilitic origin. The author saw such a case in a 22-year old woman and another in a 33-year old man. Syphilitic episcleritis is not as painful as the genuine and confines itself to one spot and does not creep around the cornea, as does the genuine.

"4. *Keratitis Syphilitica.* Parenchymatous Keratitis is usually caused by hereditary syphilis, but it may occur, although rarely, from acquired syphilis. The author saw nine cases of keratitis parenchymatosa in adults. It is a fact that syphilitic keratitis in adults is generally confined to one eye. This corneal inflammation is a so called keratitis parenchymatosa atypica. The clouding is developed either in spots in the middle portion of the cornea or wedge shaped in the peripheral zone.

"Horner and Jakolevna observed among 51 cases of keratitis parenchymatosa two of acquired, 26 of hereditary, and ten cases in which syphilis was suspected. Mauthner and Hock have described an interstitial keratitis punctata. The author also observed this kind of a case once in a woman.

"5. *Iritis Syphilitica.*—The iritis of the third stage is more irritable and more stubborn than that of the second stage, more inclined to relapses, and may also become quite chronic. A genuine iritis gummosa occurs, which is not to be confounded with iritis papulosa of the second stage, which is also, unfortunately, called gummous iritis. Gumma of the iris develop slowly in its peripheral portions and attain the size of hazelnuts. Such gumma, however, are rare, and on the other hand the chronic iris forms are much more frequent with development of occlusion of the pupil.

"6. *Choroiditis Syphilitica.*—In general choroiditis of specific origin has no especially typical forms. In choroiditis the syphilis must be made evident by other symptoms. There are, however, forms of choroiditis in which we are accustomed to regard syphilis as the cause, thus, retino-choroiditis that Foerster has described, and other forms, especially choroiditis serosa attended with fine molecular clouding of the vitreous. When this choroidal inflammation becomes chronic it may cause secondary glaucoma or atropgia bulbi.

"The circumscribed forms of choroidal inflammation also occur in syphilitics. The choroiditis centralis which involves the macula should always give rise to suspicion of syphilis, and the diagnosis is confirmed if chronic iritis is present at the same time. The development and course of choroiditis deceminata have many similarities in common with gumma of the choroid.

"In choroidal inflammations antispecific treatment is always to be ordered to put a stop to the destruction of the choroid. The places already atrophied remain unchanged as eternal evidences of a preexisting disease."

"7. *Disease of the Retina and Nerve.*—In cases of diffuse retinitis one must always ask the question if it does not come from syphilis, but these cases belong to the second stage of syphilis. The relapsing retinitis centralis described by Graefe is the only one that can be considered as belonging to the third stage, but it is a rare disease. All the more frequent are the atrophies of the nerve dependent upon syphilis, although tabes may not always be present. Double papilitis indicated for the most part that there is an increase in the intracranial pressure. This is the result of a neoplasm which may also be of syphilitic nature. The greater the increase of pressure the greater the swelling of the veins and congestion of the disc. If, however, the extension of the gummatous inflammation is of greater importance than the pressure then the congestion is not so pronounced as the inflammation of the papilla and retina. Hemorrhages in the retina are frequent.

"If the syphilis is cured the greatest retinal changes may wholly disappear, although termination in atrophy of the nerve is to be feared. Case: S. T., aged 32 years. Left temporal region notably protuberant, sense of firm, painless tumor. Motion of left eye limited outwards. Vision both eyes 5-5, but reading causes eyes to soon tire. With ophthalmoscope both papilla are seen to be red, somewhat swollen, and edges indistinct. Retinal hemorrhages and white pacques. Syphilis ten years ago. Treatment inunctions. In 8 days exophthalmus of left eye, movements of eye limited, more congestion of the papilla. He complains of great pain in his head and of a feeling of anxiety. Finds it difficult to reckon, makes mistakes. Inunctions continued. In three weeks temporal region flatter, and exophthalmus less. In three months the fundus was fully restored to a normal condition.

"The syphilitic growth seems to be of the same character as described by Esmarch under syphilomata, which similate neoplasms and which may come under the knife of the surgeon. Syphilis may also cause amblyopia amurosis, and hemianopsia without apparent intraocular cause.

"8. *Tabes.*—Since Erb has included tabes as a syphilitic affection, it must be considered among the tertiary developments of syphilis, even if according to the view of Ketli one regards tabes as a post-syphilitic condition. Myosis and Argyll Robertson's pupil are the most important ocular symptoms of this incurable affection. The unavoidable termination is blindness from atrophy of the nerve. The tabetic muscular paralyses are for most part transitory.

"9. *Muscular Ocular Paralysis.*—In addition to the tabetic paralyses these may result directly from the syphilis. The nuclear paralysis of the inner muscles of the eye, ophthalmoplegia interna does not usually improve. Ophthalmoplegia externa or paralysis of the external ocular muscles is also a nuclear paralysis. The paralysis of all the branches of the oculo-motor nerve is the result of gumma of the base of the skull and can be cured, as well as the paralysis of the abducens. The common paralysis of the abducens, trochlear, and trigeminus can be produced by gumma of the orbit. The paralysis of the obicularis that causes lagophthalmus is nuclear. Paralysis of all branches of the facial nerve may be caused by gumma of the cerebral membrane or the periostium.

"10. *Trigeminus.*—Both the neuralgias as well as the paralysis of the trigeminus may be specific. Syphilitic periostitis or gumma of cerebral membranes or nerves may cause violent neuralgia. Paralysis of the trigeminus makes the cornea insensible. This is especially true of disease of the gasserian ganglion, and it may be regarded as the cause of neuro-paralytic keratitis.

"11. *Cataract.*—According to Mauthner the lens is the only part of the eye which appears to be immune to syphilis. The author, however, saw a case in the right eye of a syphilitic with vision of 5-5 in which he found choked disc. In his left eye, however, there was rapid development of a gray cataract with perception of light and good projection. Syphilis must produce such changes in the vascular membranes of the eye as to disturb the nutrition of the lens.

"*Hereditary Syphilis.*—The picture of hereditary syphilis is not so varied as in the acquired form, possibly because the greater proportion of congenitally syphilitic children die.

"1. *Chronic Iritis.*—Buphthalmus should arouse suspicion of hereditary syphilis. Alexander regards all cases of iritis in the first months of life, in fact in early childhood, as syphilitic. The specific origin of hydro-meningitis is very probable. The author reports a case of this disease in a girl of 15 whose mother admitted that she had been infected by her husband. Choroiditis disceminata comes from hereditary syphilis.

"2. *Parenchymatous Keratitis.*—This frequent disease of the eyes is not always and yet is for the most part a symptom of hereditary syphilis. Especially when the so-called Hutchinson's symptoms are present. The author considers such cases with keratitis as due to heriditary syphilis even in young men of 20 or 25 years of age where there is no proof of acquired syphilis.

"In one case of the author's it was of interest that a boy of 6 years acquired a parenchymatous keratitis after an injury to his cornea, and later developed a similar condition in his other eye. The father was syphilitic, and a second son later developed keratitis parenchymatosa." MELVILLE BLACK.

At the last meeting of the Zurich Medical Society in 1901, Prof. Haab spoke upon the treatment of infected, penetrating wounds of the eye. Iodoform, applied locally in 30 cases, has given striking results. Eyesight has been restored in cases hitherto considered intractable. This treatment was first mentioned by Haab at the Utrecht Ophthalmological Congress in 1900. A few drops of iodoform and gelatin are left in the inner chamber of the eye for absorption. Haab demonstrated a new case which, though complicated with panophthalmia, resulted in a vision of three-fifths to three-fourths. He considers tuberculosis of the iris an indication for the local iodoform treatment and showed two such cases, with good results.

ABSTRACTS.

ABSTRACT OF CURRENT OPHTHALMIC LITERATURE.

BY G. E. DE SCHWEINITZ, M. D., AND E. A. SHUMWAY, M. D.

The Chalazion Bacillus and Its Relation to the Coryne Bacteria. — Adolf Hala (*Zeitschrift f. Augenheilk.*, November, 1901) has confirmed fully the results obtained by Prof. Deyl in the study of the etiology of chalazion, in 1893, which have been partly accepted by Fuchs in his text-book, but have been neglected by other writers. In twelve cases of chalazion, examined within three weeks of their origin, he was successful in obtaining a pure culture of Deyl's chalazion bacillus, which he has identified as the xerosis bacillus. Injections of bouillon suspensions of the culture on blood serum beneath the conjunctiva of rabbits, produced in nearly every case growth which was histologically identical with chalazia in man. Only rarely could the bacillus be again obtained from the experimentally produced chalazia, although in one case he was able to carry the process through a third generation. He concludes as follows:

1. Chalazion represents, etiologically considered, an infectious, bacterial process.

2. The bacilli found constantly and alone in considerable quantity in incipient chalazia, are identical in all their properties with that group of "Coryne" bacteria which Kuschbert-Neisser and Leber have cultivated, and which are called "xerosis bacilli."

3. The so-called xerosis bacilli, which are present in the normal conjunctivis, and especially in its various pathological conditions, probably penetrate the conjunctiva through rubbing of the eye, and on growing there, produce an acute inflammatory process, which changes into a growth composed of chronic granulation tissue.

4. Various catarrhal affections of the conjunctiva and asthenopia in its different forms predispose to these xerosis bacillus affections.

5. In opposition to Baumgarten's opinion of the absolute a-virulence of the xerosis bacilli, experimental chalazia may be produced in rabbits by the injection of xerosis bacilli, obtained not only from human chalazia, but from a variety of other pathological processes.

From these positive results there further follows:

6. Chalazion is not a retention cyst produced by occlusion of the duct of the Meibornian glands.

7. Chalazion has none of the characteristics of, nor connection with, tuberculosis.

Two Cases of Melanotic Epibulbar Sarcoma, with Peculiar Pigmentation of the Corneal Epithelium.—W. Hochheim (*Zeitschrift f. Augenheilk.*, November, 1901) reports two cases of melanotic epibulbar sarcoma, in which the conjunctival and corneal epithelium showed, both within the cells and between them, a deposit of fine pigment granules, corresponding to the pigment of the tumors. There were no sarcoma cells included among the epithelial cells, nor was there any relation of the pigment formation to the blood vessels. Pigment granules were also present in a lesser degree in the superficial lamellæ of the cornea. He believes that the pigment could have been absorbed by the epithelial cells, from the free pigment in the conjunctival sac, or could have been carried to its position through the lymph space in the tissue, and inclines to the latter explanation as the more probable.

Sycosis Parasitaria Ciliaris (Tricophytia Ciliaris).—Hans Voerner (*Klin. Monatsbl. f. Augenheilk.*, November, 1901) details a case of this rare inflammation of the lid, produced by the Tricophyton tonsurans, with a microscopical demonstration of the parasite. The patient showed extensive involvement of the face with sycosis parasitaria, which, in places, had produced nodular swellings of the size of a cherry. In the outer part of the eyebrow was an oval growth, as large as a bean, red in color, and covered with small pustules, or ulcerated depressions, corresponding to the hair follicles. The eyebrows had disappeared, except for a few short bristles. A similar tumor, 6x10 mm. in diameter and 4 mm. high, occupied the outer half of the upper lid, running parallel to the lid margin, and involving the intermarginal space. It was firm in consistency, nodular on the surface, and extremely painful on pressure. It was surrounded by an indistinct, reddish halo, several millimeters broad, and the lower margin was covered with small pustules and infiltrated erosions, through which the few remaining cilia projected in various directions. The inner half of the lid contained several small nodules, with beginning pustule formation. The lower lid and the upper lid on the opposite side also showed similar efflorescences, from which the cilia could be very easily withdrawn. Subjectively the patient complained only of itching, and sensitiveness to dust, of a feeling of heaviness and of glucing of the lids on awakening. Microscopical examination of the extracted cilia showed a thick network of the Tricophyton mycelia and a few of the gonidia surrounding the hair bulbs and extending downward to the roots. The fungus was readily cultivated, and proved to be the Tricophyton tonsurans. The treatment consisted in removal of the cilia from the affected areas, and the application of hot compresses soaked in aluminium silicate. In two weeks the inflammatory symptoms had completely disappeared, the swelling had lessened, and the red color had changed to brown. The lid was then massaged with ungt. sulphuratum Wilkinsonii, and assumed its normal appearance within three weeks. No recurrence took place. From *sycosis ciliaris vulgaris*, the condition is to be distinguished by the formation of the large inflammatory nodules, by the rapid involvement of the neighboring cilia, the rapid recovery under appropriate treatment, and the freedom from recurrence. Only eight cases have been previously reported.

Anatomical and Bacteriological Findings in Another Case of Sympathetic Inflammation.—Grunert (*Klin. Monatsbl. f. Augenheilk.*, November, 1901) reports a case of sympathetic inflammation, following traumatic perforation of the fellow eye, which began as a chronic, serous irido-cyclitis, with increase of tension, and resulted in loss of the eye, after successive attacks. A careful histological and bacteriological examination was made (the latter in the pathological laboratory of the university [Tübingen]). No microörganisms were found, either in the cover-glass preparations, or on the cultures, nor were any discovered in the microscopical section of the eyeball. Histologically, the chief changes were seen in the iris and ciliary bodies, viz., round cell infiltration of these structures in places and marked atrophy of the tissue in others. There were also exudations in the anterior chamber; peripheral attachment of the iris and cornea; rupture of Descemet's membrane; infiltration of the cornea; occlusion of the pupil; cataractous degeneration of the lens; circumscribed cell accumulations in the choroid, especially near the optic nerve entrance; degeneration of the retina; excavation of the papillæ, with advanced atrophy of the nerve fibers, moderate infiltration around the central vessels, and hypertrophy of the septa. *The inflammatory appearances decreased markedly a short distance back of the globe, and was not demonstrable 10 mm. away from it.* He concludes that despite the investigations of the past year, we must admit that we are still far from knowing the true nature of this strange process.

Dropsical Degeneration of the Nuclei and Protoplasm of the Rod and Cone Visual Cells of the Retina Clinically Simulating Glioma.—G. E. de Schweinitz and E. A. Shumway (*The American Journal of the Medical Sciences,* December, 1901) give a histological description of an eyeball removed from a boy aged two years, which had presented all of the clinical symptoms of glioma of the retina; but on opening the eyeball, a thickened and detached retina was found, without distinct tumor formation. The eye was submitted to microscopic examination and various stains employed. The subretinal space was filled with homogeneous exudate in which were imbedded many greatly swollen cells, each of which possessed a distorted nucleus, coarse, highly refractive granules and masses of pigment of the type peculiar to retinal pigment. The principal changes occurred in the retina. The nerve fibre layer was œdematous, and the separating fibres of Müller prominent. The ganglion cells were in an advanced condition of degeneration. In the nasal half of the retina were a series of cyst-like spaces situated in the position of the external nuclear layer, and a similar series in the temporal half. These cavities were bounded laterally by the thickened fibres of Müller, and externally by the limitans externa, and they were crossed by a fine reticulum which represented the walls of large, flat cells, each of which contained a distorted and degenerated nucleus, either at the center or near the periphery. The cell bodies had a finely granular appearance, more prominent in some cells than in others, but contained no large refractive granules. The authors admit that the explanation of these changes is difficult. The following probabilities have been suggested:

1. They represent a fine network of fibrin such as has been frequently described in retinitis albuminuria. The entire absence, however, of signs of inflammation in the retina, of round-cell infiltration about the vessels, of exudation or hemorrhage, and the negative reaction of the fine network to the Weigert stain, as well as the complete difference in the appearance of the cavities, render this theory untenable.

2. The condition is due to œdema of the retina, the spaces representing cavities between the separated fibers of Müller. Such cystic cavities have been very frequently described in the fiber layer of the retina, in detachment of this membrane. In this case, however, the minute spaces do not represent cavities formed by the separation of the fibers of Müller, but are distinct cellular elements.

3. They are flat, granular cells, such as are found in the degenerative lesions of the central nervous system (in softening of the brain, etc.). They contain, however, no refractive granules, and are not stained by osmic acid.

4. They are inclosures, in an obliquely cut and folded retina,

of the cells described in the subretinal fluid. Now, although they are of much the same size, they represent an entirely different appearance. They contain no highly refractive granules, and only rarely any pigment, although the two forms of cells are separated in some places only by the limitans externa retinæ.

5. They are due to the burrowing of these cells into the retina, where they have undergone secondary proliferation and lost their pigment and refractive granules. Such a process, however, would be hard to understand.

6. They are a proliferation of the nuclei of the external nuclear layer, and represent a *true tumor formation.* Such a condition is especially suggested by the overlapping of portions of the retina, as though from an active cell proliferation. The change, however, has occurred in two remote portions of the retina at the same time, and the cells, with their degenerated nuclei, do not have the appearance of actual proliferating cells.

7. They are due to an œdematous or *dropsical degeneration of the nuclei of the external nuclear layer.* The latter are the nuclei of the rod and cone visual cells, modified epithelial cells derived from the embryonic epiblast, and would be subject to the changes observed in such cells. That the condition is not a fatty metamorphosis is shown by the absence of granules and the negative reaction to osmic acid. Myxomatous degeneration may be likewise excluded, as the cells do not stain typically with hæmatoxylin or thionin. Oedema of the retina is one of the most frequently described conditions in detachment, and in this respect this case forms no exception to the rule. Therefore, it is possible that the lesion represents a localized dropsical degeneration of the nuclei and surrounding protoplasm of the visual cells. This the authors believe to be the most probable explanation of a change which is certainly of great rarity, if it is not unique. At the same time they cannot exclude entirely the possibility of true tumor formation, and must leave the matter for time and future observation to decide.

CORRESPONDENCE.

DIPLOPIA FROM PARALYSIS OF A SINGLE OCULAR MUSCLE.

EDITORS OPHTHALMIC RECORD.

Dear Sirs:—This subject has been discussed in recent numbers of THE OPHTHALMIC RECORD. It is well to put our knowledge as succinctly as possible, so that each one can readily utilize it. The following method is sufficient for diagnosis, and is reliable:

We ascertain in what part of the field of fixation the diplopia is greatest, whether to the right, to the left, upwards to the right, upwards to the left, downward to the right, downward to the left. If we know the two muscles ("true associates") that move the eyes in each of these directions, we can find the paralysed muscle at once. The image most displaced and advancing belongs to the paralysed eye. Knowing the paralysed eye, we know the muscle at fault.

I am, yours very truly, E. DONALDSON.

Londonderry, Ireland, Jan. 10, 1902.

Dr. C. R. Holmes does not believe that cocaine solutions become inert after sterilization, and says that he has not used any cocaine solution for twelve years that had not been sterilized by boiling, and has used it upon operations upon the eye, ear and nose thousands of times. In his experience it is the rarest thing to find that the drug is not efficacious, and in these rare cases he has regarded its lack of action to the individual idiosyncrasy of the patient. One must always bear in mind that there is a great difference in alkaloids, and my remarks have reference only to Merck's preparation, as I have used none other.

REPORTS OF SOCIETIES.

CHICAGO OPHTHALMOLOGICAL AND OTOLOGICAL SOCIETY.

REPORT OF THE MEETING FEBRUARY 11, 1902.

BY DR. BROWN PUSEY, SECRETARY.

President Dr. Wm. H. Wilder in the chair.

Dr. L. E. Schwarz read a paper entitled "*Some Observations on the Efficacy and Irritating Properties of Nargol.*" From an experience of the use of nargol in forty cases of the several varieties of inflammation of the conjunctiva, blepharitis and corneal ulcer the following conclusions were arrived at: nargol is relatively non-irritating, has considerable range as an astringent, as well as superior penetrating power, stability, and solubility, and is most efficient in 10 and 20 per cent solutions, which should not be kept more than six weeks. The addition of a few drops of 1 per cent chloretone solution retards decomposition. In solutions of equal strength nargol is more stable and less irritating than protargol and appears to be equally efficient.

Dr. F. C. Hotz was glad to learn that nargol is as efficient as protargol, and, if anything, less irritating. He still uses protargol, and has not changed his opinion as to its efficacy. In blenorrheal cases he finds a 20 per cent solution the best. He has also used protargol in other forms of conjunctivitis. In chronic conjunctivitis he finds that a 20 per cent solution of protargol causes a slight swelling of the retrotarsal fold, while a five per cent solution is very pleasant and very efficient. In cases of blepharitis, he prefers the nitrate of silver because it is the richest silver salt, and in applying it to the edge of the lid irritation and pain are not to be considered. It is the conjunctiva which must not be irritated, and with care in applying the nitrate of silver to the edges of the lids it can be prevented from touching the conjunctiva.

Dr. W. F. Coleman said he had used protargol in 20 per cent solution with great satisfaction, yet in some cases it produced considerable smarting and pain. To guard against those symptoms, he adds 10 per cent of glycerine, which addition almost always prevents the protargol from being irritating. Personally, he thought nargol was as satisfactory as protargol. He asked the essayist whether he had used nargol with a solution of glycerine, and if he had found it less painful and less irritating than the nargol alone.

Dr. Schwarz replied that in the last two weeks he had been trying 10 per cent solution of nargol with glycerine, and comparing it with the same strength without glycerine, and he had done this also with protargol. His conclusions thus far are that the solutions of nargol and of protargol which contain glycerine are more painful than those that do not contain it.

Dr. Hale asked whether Dr. Schwarz or anyone had made test tube experiments with nargol as to the percentage of strength necessary to kill the gonococcus or any other pure culture of germ, to which Dr. Schwarz replied that he had not.

Dr. Albert B. Hale presented a man, thirty-four years of age, who suffered from *extreme hypertrophic conjunctivitis.* He did not think it was trachoma, although some might differ from him. The retrotarsal folds were enormously swollen, so that on everting the lower lid the mucous membrane was pushed above the cornea. He could see nothing to do but to make an excision, which was done under cocaine anesthesia. The cocaine solution injected puffed out the mucous membrane and beneath this stitches were placed so that the mass above it could be cut away. The operation has been favorable in reducing the hypertrophy. He finds little mention either in books or in current medical literature as to the excision of the inferior retrotarsal folds. He has performed the operation on the superior tarsal fold, and knows that Kuhnt is an enthusiastic advocate of it in cases of trachoma, but he has not seen such good results from the operation in trachoma as he has in such a case as the one reported. The fold of membrane, when laid out flat, measured about 9 mm. across.

Dr. Hale described a case in which he had done a *double Panas operation after syphilitic paralysis.* The woman was forty years of age, and had complete bilateral ptosis, and complete ophthalmoplegia externa on a syphilitic base. In addition to the ordinary conditions seen in congenital ptosis, the visual line could not be moved except when the body was turned completely. The operation was performed on both eyes under the same anesthesia. Union was very good, so that through the brow there could hardly be detected any scar. He thought it would be impossible to get good results with such a history as his patient gave. There was very nearly complete atrophy of the levator on each side. In the right eye, after the operation, the lid was elevated about a centimeter; in the left eye the effect was not so good, so that the cornea could not be uncovered completely. He stated that he had learned a lesson from this, and that was, not to yield to the fear which Panas himself has suggested, in his original article, namely, that in taking superficial stitches there is great danger of producing ectropion. He was afraid of that, and the result was that he did not get the result he wanted. He thinks it would be much better to exaggerate the condition and get a pronounced ectropion which would be readily relieved afterwards by a simple operation.

Dr. Hale also described a case of *Keratoconus treated by galvano cautery puncture.*

Galvano-cautery puncture of the cornea for progressive keratoconus is an operation which has attracted a good deal of attention in medical literature during the last two or three years. The patient on whom this operation was done was a woman, 38 years of age. She was not at all well physically, and suffered from spinal disease. She had undergone several abdominal operations. She was very myopic in both eyes—about ten diopters—and had been losing vision in the right eye for several years, so that it had become practically useless. During the last six months the conical shape of the cornea had become more and more pronounced, so that the lid could not be completely shut over it. The cautery was used according to the method of Knapp, which he reports in detail in Norris and Oliver's System. The cornea was completely punctured, the aqueous was allowed to escape slowly, and no great care was taken to make the wound small; it was rather large. The wound healed after three weeks, with very little scar. The operator was fortunate enough not to touch the lens. There was no such thing as accurate measurement, but approximately the cornea was reduced from one and a half to two millimeters, and during the last three months, since the operation was performed, there has been no progression. Vision has not materially improved.

Modified Pagenstecher Operation.—Dr. Henry Gradle, referring to the second case mentioned by Dr. Hale, stated that he wished to lay before the society a plan that he had recently pursued, although not the ptosis operation of Panas. The operation was a modification entirely different from any of those that he had seen published. The case was one of complete congenital ptosis, seen some months ago, and it was a question in his mind whether to make a Panas operation or some other operation. He decided upon a modified Pagenstecher operation. In this operation a thread is introduced connecting the tarsus with the frontalis muscle. The thread is allowed to produce suppuration, and it is finally removed, its place being taken by a cicatricial band. His plan was to allow an aseptic thread to heal in place permanently and thus to connect the lid with the muscle of the forehead. He selected silkworm gut to insure asepsis. He dipped the gut into nitrate of silver, neutralizing afterwards the silver solution so as to have a brown deposit of the suboxide of silver in the substance of the gut, and therefore boiled it, and his hope of having it stay in place was realized. The upper incision was made one centimeter above the eyebrow; the lower incision was barely below the upper edge of the tarsus, and a single loop was put through, which was attached to the subcutaneous tissue inserted into the tarsus, so that there was not the least possibility of producing any ectropion. The loop was tied inside of the wound above the brow. The wound healed by first intention. Unfortunately the patient was not under observation longer than four weeks, but during that time there was not the least evidence of irritation by the foreign body, so that there is all reason to believe that it will stay in place. The operation was a satisfactory success, but not as perfect as might be wished. There was decided improvement in the opening of the lid, but he did not think the improvement was as great as it might have been if he had tied the thread a little more vigorously. He said he was too timid about it. The wound was closed with the lid space gaping about 3 mm. But in the course of a short time the tissues gave way and the lid could be closed completely, but of course could not be opened quite as much as at the moment of the operation. The advantage of this operation over Panas' is that there is less dissection required, and general narcosis is entirely superfluous.

Dr. W. F. Coleman said that he wished to refer to another operation, the Wilder method. He had operated on four cases by this method, and three of them were exceedingly successful. In the fourth case the operation was followed by suppuration, and while it was temporarily successful, it did not eventually prove to be so. The patient had been operated on in infancy by another oculist, without any success.

Dr. William H. Wilder referred to the likelihood of accumulations under the pouch, that is necessarily formed by Panas' method. He also said that it seems that the lid cannot be held up as well as it can with connective tissue strands such as are intended by the Pagenstecher operation. It had therefore occurred to him that we might possibly utilize the suspensory ligament of the lid, the layer of deep fascia, which is reinforced by the spreading of the fibers of the levator palpebrae. By throwing this into folds, and attaching it to the frontalis muscle by means of buried sutures we have a means of holding the upper lid which in his experience is superior to any other measure. The only objection is that it is a rather complicated operation, and sometimes suppuration will follow. In the cases he has had the suppuration had not interfered with the ultimate result, because new connective tissue was formed, which helped matters. Unless the deep sutures are placed carefully, they may pull away and after two or three weeks the result is not all that can be desired. A great many cases have been permanently relieved by this method of operating. He thinks an operation for the relief of ptosis is one of the most difficult plastic procedures that we have to do on the eyelids.

Dr. Cassius D. Wescott said that last summer it was his privilege, while in Paris, to assist Montais, in doing his operation for ptosis, which consists in grafting the central portion of the tendon of the superior rectus into the upper lid, and attaching it just above the tarsus, where the levator is inserted into the tarsus. In theory it is a beautiful operation; in practice, it is a difficult and delicate one to perform. But as Montais does it himself, the speaker was told by him and those who have seen his work, that it is very successful. The immediate result of the operation in which he assisted was very satisfactory. The upper lid is everted as completely as possible, and held so by tenacula. The eyeball is pulled down as far as possible, the tendon of the superior rectus is uncovered, so that it can be well seen by dissection of the conjunctiva of the bulb. The central two-thirds of the fibers are cut and dissected out for perhaps a centimeter, and then grafted into the opening made through the conjunctiva of the upper lid, so that they are inserted just above the tarsus into the tendon of the levator and the fascia of the upper lid. It is a very pretty operation, and as the lid should be raised as the eyeball rolls up, it is more or less physiological in its conception.

Dr. H. V. Würdemann, of Milwaukee, stated that the specimen which he had to present was perhaps apropos of one of the operations of which Dr. Hale had spoken, in that an excision was done of a portion of the under surface of the upper lid. The case was one of granular conjunctivitis, reaching the trachomatous stage, and in which there was subsequently a *papillomatous degeneration of the conjunctiva.* He does not know why, but the case was treated for several years by strong applications of nitrate of silver and by sulphate of copper. These applications are the only reason he can give for the papillomatous degeneration. The microscopical drawing is typical of papilloma, in that one finds that there is an epithelial covering to the little tumor, as well as a fibroid degeneration underneath, replacing the characteristic adenoid or subepithelial tissue. He at first believed that it was a case of trachoma with rather hard granulations; but in endeavoring to strip the lid with Knapp's forceps, he found that he could do nothing, by the brossage and grattage operation; practically none of the tumor tissue was removed. He finally dissected the tumor off the lid. That was done six weeks ago, and there has been no recurrence of the papillomatous condition.

Dr. E. F. Snydacker *exhibited charts and models to illustrate Mouthner's method of diagnosing muscle paralyses.*

SECTION ON OPHTHALMOLOGY.

COLLEGE OF PHYSICIANS OF PHILADELPHIA.

Meeting, January 21, 1902. Dr. William Thomson, Chairman, presiding.

Dr. Geo. C. Harlan showed a case of *Congenital Orbital Cyst with Microphthalmus.* The patient was a rather delicate looking but apparently healthy girl, 7 years of age, without other history than that the tumor was congenital and increasing in size. The left lower lid was pressed forward by a large incompressible but tensely fluctuating cyst, the blue color of which was evident through the thin and distended skin. The external dimensions of the tumor were 40 by 25 mm. The lower margin of the orbit was 5 mm. below that of the other side. The interpalpebral commissure was 5 mm. shorter than that of the other side, was pushed upward by the tumor, and opened into a deep conjunctival sac above the cyst. At the bottom of this sac could be felt a rudimentary eyeball, hardly larger than a pea, which moved freely in unison with the other eye. There were no other abnormalities.

Congenital orbital cysts with micropthalmus or anophthalmus are rather rare anomalies. A few cases have been recorded in England and France and more in Germany, but none in this country except one reported by Dr. Harlan at the meeting of the American Ophthalmological Society in 1893. Their pathology is very obscure, but most authorities agree that they are formed by embryonic elements intended for the development of the eye. A further report of this case will be made when the tumor has been removed and examined microscopically.

Dr. C. W. Le Fevre (by invitation) reported a case of *Bullet*

Wound of the Orbit, with destruction of the eyeball by a fragment of bone, in a man aged 47 years. The wound was in the right temple, about midway on a line from the angle of the orbit to the top of the attachment of the auricle, the pistol, of .32 calibre, being held nearly at a right angle and only a few feet away. Except for immediate complete blindness, the man suffered no symptoms and was not rendered unconscious. Following healing of the wound there elapsed a period of over six years unmarked by symptoms, except for excessive lachrymation in the injured eye. Then came panophthalmitis with sympathetic irritation, the latter disappearing after enucleation. Laboratory study of the bulb showed that a fragment of bone 9 mm. long, 5 mm. wide, and 2½ mm. thick had been driven from the orbital plate entirely into the eyeball. The scleral wound closed, forming a puckered scar, with isolated portions of retina incorporated within it. Only the beginning changes of organization had taken place in the blood-clot and exudative masses which filled the vitreous chamber at the time of injury.

Discussion.—Dr. Risley recalled a case he had reported to the Section two years ago, in which several small shot struck the face of a farmer while in the stooping position; one of which entered near the supraorbital ridge. The eyeball was blind five weeks later, with retinal detachment. The shot followed the tissues of the orbit, and lodged in the upper and outer portion of the eyeball, between the choroid and sclera, where it was found after enucleation for sympathetic irritation.

Dr. G. E. de Schweinitz read a paper on *The Treatment of Detachment of the Retina by Means of Scleral Puncture, Followed by Large Subconjunctival Injections of Salt Solutions.* After referring to the literature of the subject, he gave the history of a case of retinal detachment completely cured by nine large (25 minim) subconjunctival injections of physiologic salt solution followed by scleral puncture. The vision before treatment was hand movements; after reattachment with —4 D. it was 5-25. Prior to the treatment described, dorsal decubitus, pilocarpin diaphoresis, and iodid of potassium had proved to be ineffectual. Dr. de Schweinitz referred to the solutions which had been used by several French observers; for example, Jocqs employs a saturated saline solution and Bourgeois a 30 per cent solution, each mitigating the pain which they caused with cocain. Jocqs bases his idea of the treatment of retinal detachment upon the theory of diffusion brought forward by Raehlmann, with which he is in accord, and thinks that the salt solution acts on the principle of osmosis. The sclera and choroid are not compared directly to the animal membrane of a dialyzer, but he believes that the blood of the choroidal vessels becoming charged with salt by absorption, in turn attracts and absorbs the subretinal fluid, or perhaps that there may be a diminution of the tendency to the transudation of serous fluids from these vessels. He is convinced that the saturated or at least a strong solution of salt will prove more active than a weaker solution. Dr. de Schweinitz referred to the fact that many of these reattachments of the retina were not permanent and the condition was apt to manifest itself again when the patient returned to his work. In his own patient the retina was in place some weeks after it had attached itself, but since that date he had not been seen, and therefore his later history could not be given.

Discussion.—Dr. Risley had cured one case by the subconjunctival injection of salt solution, but the detachment recurred following the exhaustion of a long walk on a hot summer day. The quantity of the injection which he was accustomed to use was less than that mentioned by Dr. de Schweinitz. While the theory of osmosis might explain the removal of the subretinal fluid, he believed that the increase in the rapidity of the lymph stream by dilution, thereby tempting an outflow of the fluids of the eye, was a factor in the cure.

Dr. William Thomson showed a boy, aged 19 years, with normal vision after the *Removal of a Piece of Steel from the Vitreous of the Left Eye by the Sweet Magnet.* The metal entered at a point slightly in front of the attachment of the external rectus, and could be plainly seen with the ophthalmoscope in the outer upper portion of the vitreous, protruding from a snow-white exudate, slightly more than a disc diameter in size. As the lens was uninjured, the wound in the conjunctiva was opened with a spud, and the cone-shaped point of the magnet placed against the sclera, in order to test the power of the magnet to draw the metal through the length of the vitreous. When the current was turned on, the boy was conscious of the movement of the steel from its original position. A slight incision was then made in the sclera, the magnet again applied, and the steel was found attached. Three weeks after operation V = 6-6, with a slight scotoma corresponding to an area of choroidal degeneration where the steel rested. The formation of an opaque exudate without infection is of interest, and is rarely seen and watched during its absorption.

Dr. E. A. Shumway reported a number of cases of *Acute Contagious Conjunctivitis* of a severe type, which were characterized by pronounced swelling of the conjunctiva, and by the formation of phlyctenules at the corneal margin. One case presented extensive infiltration of the cornea. The Koch-Week's bacillus was found in all of the cases examined. This experience differed from that of Veasey and de Schweinitz, who found the pneumococcus to be the most frequent cause of acute conjunctivitis in Philadelphia, three years ago. Dr. Shumway thought that the appearance of this more highly contagious form called for greater precautions in the isolation of the cases, particularly in those occurring among school children.

Discussion.—Dr. J. F. Prendergast (by invitation) described the epidemic of conjunctivitis which prevailed among the 450 children in the St. John's Orphan Asylum during the winter of 1900-1901. It was found impossible to properly isolate those affected, and there were 300 cases during a period of six months, some of the boys being infected a second time. In about 20 of the cases phlyctenules developed at the margin of the cornea. The epidemic was caused by the Koch-Week's bacillus. DR. WM. M. SWEET,

Clerk of Section.

DENVER OPHTHALMOLOGICAL SOCIETY.

Meeting of January 25, 1902, at Colorado Springs. Dr. Geo. F. Libby in the Chair.

Dr. A. C. Friedman, of Colorado Springs, showed the case of a woman aged 34, *pupil of O. D. dilated ad maximum.* Had been taking no medicine. Eserine causes temporary contraction. No history or symptoms of syphilis. Visual field somewhat contracted. O. D. V. 5-4. No paralysis of external eye muscles. Accommodation intact. She is fearful that the eyeball is becoming larger, but there are no evidences of this.

Dr. Friedmann showed the case of a boy aged 11. When he was four years of age he fell on the ice when skating. Every year since then he has had one spell of unconsciousness lasting about twenty minutes accompanied by convulsive twitching of one arm and frothing at the mouth. He does not bite his tongue. He was first aware of poor vision of right eye a year ago. Dr. Friedmann saw him a few weeks ago, and found extensive detachment of the retina of this eye. Only a small part of the fundus above could be seen to be in position. His vision was fingers at 50 c. m. He put him upon kali iod. with remarkable improvement. Today he has O. D. V. 20-80. The optic nerve is now plainly visible and the upper part of the macular region. Dr. Friedmann thinks the detachment of retina is of longer standing than a year. That it was probably detached by falling in one of his attacks. He believes the attacks are epileptiform and may have been caused by a cranial fracture by his fall upon the ice when he was four years of age. He thinks it quite remarkable that his vision should improve so greatly under iodide of potassium.

Dr. Friedmann also presented the case of a man 34 years of age who has *progressing tabes with atrophy of optic nerve and typical Argyll Robertson's pupils.*

Discussion.—Dr. E. Jackson thinks in the case of the boy, that the detachment looks to be old, because it has little movement, and looks thickened. He thinks the improvement in vision possibly due to a change in the position of the detachment, thus exposing more of the macular region. He thinks it very likely that the detachment was caused by one of his falls.

Dr. J. A. Patterson, of Colorado Springs, thought it would be interesting to know if the convulsions were due to fracture with adhesions and pressure, or if they were truly epileptiform, and if the original fall on the ice was not in his first epileptic convulsion.

Dr. J. A. Patterson, of Colorado Springs, showed the case of a man aged 32 who was *operated upon ten years ago for trachoma.* He now has an ulcer which is sluggish and does not show much improvement under treatment. His palpebral conjunctiva consists of bluish, smooth cicatrical tissue. No granulations.

Dr. Patterson showed the case of a man with *congenital cataract.* This case was reported at the November meeting, and in showing the case now he again desired to call attention to his age, 19 years, the atrophic iris, the opaque central lenticular area, and the fact that a fleeting view of fundus can be had with the ophthalmoscope through the iris. His vision is not sufficient for him to get about at all times with ease nor for him to do very much at near point. The question of operation he desires an opinion upon, as this is the only eye the patient has, the vision of the other eye was lost during infancy from operations performed for the removal of congenital cataract.

Discussion.—Dr. Black. The case of corneal ulcer was under his care for about sixteen days. The eye was much inflamed when he first came, and progressed favorably under antiphlogistic treatment. The ulcer made progress slowly towards recovery under the use of nosophen dusted over the cornea once daily. When he left the ulcer would not stain. There was quite a facet left, however.

Dr. Bane advised the use of dry calomel dusted over the cornea.

Dr. Friedmann thought a cantholysis advisable.

Dr. Jackson thought in the case of congenital cataract that there was a congenital partial absence of the iris body, that the lens clear toward the periphery and somewhat loose. He thought it possible to give him better vision by removing lens, but that the risk would be greater than in senile extraction.

Dr. Black would explain risk and then extract lens, if patient agreed, by simple extraction method.

Dr. David H. Coover, of Denver, showed the case of a woman aged 25, who for a year has been aware of an *increasing exophthalmus of O. D., with gradual failure of vision.* There has been no pain either before or since the eye became thus affected. It is not now painful to touch, and externally there are no inflammatory signs. It protrudes about 5 mm. beyond its fellow. The optic disc is inflamed and somewhat swollen on nasal side. Deep pressure with fingers into orbit above the ball does not reveal any feeling of a growth. The eye protrudes directly forward. Its movements up are somewhat limited. She is on K. I.

Discussion.—Dr. Jackson thought it possible for a sarcoma to produce her symptoms, but that they are more likely caused by a specific growth, either bony or gummatous. He believes the growth situated near the apex.

Dr Black examined the nose and reported no evidence present of disease of the ethmoidal region, and that he thought an abscess in orbit from rupturing into it of pus from accessory sinus could be excluded. He advised continuation of antispecific treatment now being given by Dr. Coover, and to await further developments in the case.

Dr. Geo. F. Libby, of Colorado Springs, showed the case of a little girl aged eight and a half years, with *convergent squint with central leucoma of each cornea.* History of ophthalmia neonatorum with corneal involvement of both, but worse in left eye. Has had squint ever since. Every other day left eye turns in and conceals cornea. O. D. V. = O. 4: O .5 W. + 1.00 ⊂⊃ + 3.50 ax. 120: O. S. V. = 0.1 : 0.4 W + 1.00 ( ) + 1.25 ax. 120°. Javal, 3.50 ax. 90°. O. S. 1.50 ax. 90°. Has been wearing above correction less 0.25 S. There has been a gradual improvement under this correction. He asked for an opinion as to advisability of operation.

Dr. Libby showed a man aged 20 with *embolism of the central artery of the retina* of left eye. He gives a history of a severe blow on the back of head three years ago. Frequent dizzy spells occurred for one year afterwards. For the last two years these spells have been less frequent, lasting about a moment or less. Patient confident of good vision of both eyes up to June 20, 1901. The pupil of left eye was dilated and reacted consensually to light, accommodation and convergence. O. S. V. nil. when he first came under Dr. Libby's care. He found an oedematous condition about the disc extending to an involving the macula. Vessels tortuous and lost near the disc. An analysis of his urine July 8, 1901, showed 15 to 20 per cent albumin by volume. Sp. G. 1020. Reaction acid. On July 22 the disc was better defined. On the 29th infiltration spots were present about the macula. On the 3rd of August there was only a trace of albumin in urine, with Sp. G. 1022. On the next day no albumin, with Sp. G. 1024. Treatment from July 6 to September, 1901, mydriatic, iod. sodium, hydrarg. rubrum. Later Basham's mixture. At present there are no spots of infiltration in the retina. Disc markedly atrophic, arteries empty, veins under-sized. Urine free from albumin. Patient in good physical condition.

Dr. Libby showed a woman aged 77, who sustained a spinal injury from a fall 40 years ago; irritation kept up by subsequent falls and blows. Thirty years ago noticed a fine diagonal line across the reading page, increased slowly until now lower and inner half of field has become lost (past year). O. D. V. = O. 4 W. + 0.5 = 0. 7, O. S. V. = 0.3 not imp. The ophthalmoscope showed lenticular striae in left lens. Abundant white atrophic spots in fundus, and glaucomatous cupping with atrophy of disc. In O. D., there is a deep physiological excavation of disc with a few white spots in fundus.

Discussion.—Dr. Jackson in referring to the case of strabismus would advise that the operation be deferred so long as the squint is variable in amount. Would operate when it became fixed. Thinks the use of fusion tubes might help.

Dr. Patterson thinks if operation is performed he would favor advancement.

Dr. Friedmann thinks it very possible that the case will terminate favorably without operation.

Dr. Black favors the trial of thiosinamine to improve the corneal leucomata. He referred to the work of Casey Wood and Würdemann in practicing deep orbital massage in cases of embolism of the central artery of the retina.

Dr. Jackson referred to a case of his own of some years ago, who had a plugging of a retinal vein. He put him upon nitroglycerine with strychnine, with final complete restoration of vision.

Dr. Wm. C. Bane of Denver reported that his case of *oxophthalmus* shown at two previous meetings of the society is apparently well. He does not give much credit to the specific treatment administered in a rather indifferent manner, and thinks the reduction of the exophthalmus, due to thrombosis of the ophthalmic vein, was overcome by establishment of collateral circulation through the facial veins. He will try and have the woman present at the next meeting of the society in Denver. MELVILLE BLACK.

MEXICAN OPHTHALMOLOGICAL SOCIETY.

TRANSLATED BY DR. A. B. HALE.

Meeting of November 28, 1901. Dr. F. Lopez presiding.

It was decided to reorganize the society in the hope of stimulating ophthalmology in Mexico. The following officers were elected: President, Fernando Lopez; vice president, L. Chanez; secretary, D. M. Velez; pro-secretary, R. Silva; treasurer, E. F. Montano. There were present Drs. Chacon, Chanez, Grave, Lopez, Fernandez, Montano, Ramos, Silva, Tojavar, Troncoso, Vallejo, Vertiz and Velez.

Dr. E. Montano read a paper on *Exuberant Pericorneal Conjunctivitis,* which he said was the same thing as Europeans call spring catarrh. He referred to his work in 1884, where he claimed that trachoma was not so rare in Mexico, and that the so called spring catarrh had become confused. Eight years of study had confirmed his original opinion "that pericorneal conjunctivitis is only a trachoma modified by conditions of climate and altitude and race; an atenuation of virus and of contagiousness." He added that an old man was seldom affected, whereas the young were often attacked; that cure was often spontaneous, and vision was seldom affected the way it was in pure trachoma. This may be due, as Chibret says, to the fact that trachoma loses its virulency at an altitude of about 150 meters. The ordinary treatment for trachoma is also the best for the other forms of conjunctivitis, and the two diseases localize themselves in about the same place on the membrane. This kerato-conjunctivitis is rare where trachoma is frequent, and vice versa. The germ of both is to be sought in dust; its course is rather chronic; tends to spontaneous disappearance, though helped by treatment.

Discussion.—Dr. Velez has used to advantage a solution of cyanide of mercury 1: 3000. Dr. Montano said that iodin in glycerin was of service, though somewhat painful. Dr. Ramos did not think that these diseases were the same. In Mexico there were seen nearly typical cases of trachoma side by side with kerato-conjunctivitis, thus showing that altitude did not exclude the former; and cases of transition were not observed. Moreover, the corneal lesions were different. Trachoma attacked the fornix, the other avoided it. He did not consider it a valid argument that because treatment for one was good for the other, therefore the diseases were the same. Generally trachoma was found in adults and was cured with difficulty, while kerato-conjunctivitis was found in children and would probably heal spontaneously.

Uribe Troncoso considered the two diseases as quite distinct, and of different clinical manifestations. Kerato-conjunctivitis was seen in two forms: tarsal and bulbar. The former might be confused with trachoma, the latter never. The limbitis of the latter was at times isolated, without conjunctival vegetations, while the intermediate zone of clear cornea (Fuchs) seldom showed itself. The corneal infiltration could never be confounded with panas. Above all, trachoma is a rebellious disease and contagious; the other is mild, curable and noncontagious.

Dr. D. Velez read a paper on *Adrenalin or Surenalin* (a French preparation). He finds the refined drug indispensable in eye practice to define inflammation, reduce hemorrhage and to aid in the action of cocain. It seems harmless locally; and even if absorbed is a heart stimulant.

Discussion.—Uribe Troncoso supported all that was said in favor of adrenalin. He had but just used it on a pterygium operation (assisted by Dr. Galezowski).

OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM.

Thursday, Jan. 30, 1902.

David Little, M. D., F. R. C. S. E., President, in the chair.

Dr. G. O. Hawthorne read a paper on *Intracranial Thrombosis as a Cause of Double Optic Neuritis and Ocular Paralysis in Cases of Chlorosis.*

He stated that it was a well known fact that optic neuritis and paralysis of some of the extraocular muscles occurred in cases of chlorosis and in some of the most serious of these death took place. Post-mortem examination, as a rule, revealed nothing more than thrombosis of some of the intercranial veins and sinuses.

All degrees are met with from these severe cases to those which have only optic neuritis and these as a rule get well.

Now any of the recognized symptoms of cerebral tumors is optic neuritis, and Dr. Hawthorne advanced the theory that a bloched sinus may so far act as a tumor as to cause neuritis. He cited several cases in which relief of thrombosis was followed by subsidence of the ocular symptoms.

Discussion.—Sir William Gowers thought that unless the clot or embolus was septic the evidence of thrombosis in these cases was very small.

Mr. Johnson Taylor asked how Dr. Hawthorne accounted for the absence of proptosis if the cavernous sinus was thrombosed.

Dr. James Taylir quite agreed with Sir William Gowers. He had great difficulty in explaining the fact that both nerves showed inflammatory signs, on the thrombosis theory.

Mr. Ernest Jones read notes of a case.

Dr. Hawthorne in reply said he thought that the post-mortem evidence of the cases reported went largely to prove that thrombosis was the chief or only cause of the optic neuritis. He did not think that the cloting was necessarily in the cavernous sinus, for if so there would probably be protopsis, but it might be present in some other sinus or its tributaries.

Mr. G. A. Berry. *Note on the treatment of cystoid cicatrix following cataract extraction.*

It is not always possible to prevent the formation of cystoid cicatrices after removal of cataract and when they do occur they are a source of danger to the eye on account of the way they facilitate the entrance of micro-organisms. The author has found that it occurs in about 2 to 3 per cent of cases operated upon. As a rule, the opening is very small and can be seen readily if the conjunctiva be dissected up. For the treatment he prefers to dissect up the conjunctiva and turn it down as a flap, then with the cautery to gently burn the small opening and at once replace the conjunctival flap. This always cures it and he prefers this method to any other that has been introduced.

Mr. Simeon Snell (Sheffield) related a case of *Endothelioma of the Orbit associated with peculiar varicose condition of the vessels of the surface of the eyeball* occurring in a girl aged 19. A marked feature was the varicose condition of the veins on the surface of the eyeball below, and which had first been noticed about 3 months before the date of operation. There was also marked proptosis, the left eye being about ¼ inch in advance of the right. There was no edema of the eyelids. The smooth surface of the tumor was felt in the floor of the orbit. Movements of the eyeball were normal except downwards, where there was some limitation. Vision was $\frac{6}{6}$. On October 28, 1901, the entire tumor was removed through an incision in the lower lid without interfering with the eyeball. It had only loose attachments, it reached to the back of the orbit close to the under surface of the eyeball and along the front part of the optic nerve. It was encapsuled and measured 1¼ inch long and about ½ inch thick. The eyeball has since resumed its normal appearance and the varicose condition of vessels has disappeared, and vision is $\frac{6}{6}$. Mr. Treacher Collins examined the growth for me and reported it to be an Endothelioma.

Mr. Simeon Snell also related a case of *Ringworm of the Eyelid in an adult, due to a large spored Trichophyton, probably of animal origin,* occurring in a healthy agriculturist aged 34. He was first seen on Dec. 17, 1901, with a large red patch on the right eyelid which had commenced two weeks before, as a rounded brownish-red pimple on the skin near the outer canthus. It gradually increased in size and now measures 2 inches by 1¼. It is oval in shape, with pustular points and well defined edges. It involves the outer half of the upper eyelid, reaches to the temple, embraces the outer commissure and the outer corner of the lower eyelid. The affected eyelashes and hairs of the eyebrow have fallen out or were loose. The preauricular gland and gland beneath the jaw are involved. There are 6 other lesions on the right forearm and 2 on the left. In all the patches there is marked loss of hairs.

The patient kept cows and one had had on the left side a white patch without any hair on it for about 2 months.

The ringworm apparently commenced on the right arm and the eyelid became affected by contact, the man working with his bare arms. Under the application of yellow mercuric oxide ointment improvement soon commenced and today, Jan. 30, the patches on the arms have practically disappeared and the one on the eyelid is only distinguishable by its greater redness. Under the microscope a large spored fungus was found, probably Megalosporon Ectothrix. Cultures from the hairs removed from the cow were not successful.

Observations on the Visual Purple of the Retina. F. W. Edridge-Green, M. D., F. R. C. S. Read before the Ophth. Soc., Jan. 30, 1902. (The expense of this research was defrayed by a Government Grant of £10.)

I undertook this investigation in order to ascertain whether I could obtain any objective evidence of the diffusion of the visual purple into the yellow spot of the retina. Many phenomena point to this conclusion, such as the fact that a perceptible interval elapses before we are able to see with the yellow spot and that a light may fall on the fovea without producing any sensation. My first experiments were made with the help of Mr. Treacher Collins. On examining the retina of a monkey it was at once evident that the visual purple extended to the yellow spot, but the very deep yellow of the spot prevented us from saying with certainty that the color altered on exposure to light. Mr. Treacher Collins and I have tried numerous chemicals in order to find out a substance which would fix the visual purple, but have not been successful. Nearly every chemical I used destroyed the purple. I then examined the eyes of two monkeys by myself and tried to obtain a first view of the yellow spot of the retina through a microscope. It was at first red and then gradually bleached under the influence of light. I noted a curious appearance in one retina: On examining the region just external to the yellow spot I saw rose colored cones surrounded by one or more circles of colorless rods. My last observations were made with the help of Mr. Devereux Marshall. Two monkeys were kept in a dark room for 24 hours and then Mr. Devereux Marshall excised their eyes under chloroform, the room being only illuminated by a ruby light. The retina having been arranged on a slide was put on the stage of a microscope and viewed with a white light. The whole retina was bright crimson, but the brightest part of all was the yellow spot and it could be seen that the visual purple was situated between and not in the cones in the rod free district of the yellow spot. Then the visual purple in a few minutes bleached, leaving the yellow spot in its usual yellow color. I must here express my great indebtedness to Mr. Treacher Collins and to Mr. Devereux Marshall and also to Prof. Starling for the use of his laboratory and the very admirable dark room at University College.

The following card specimens were shown:

1. Mr. George Keeling. *Unusual Refractive Change after removal of a Congenitally Dislocated Lens.*
2. Mr. H. R. Belcher Hickman. *A case of Retinitis Proliferans.*
3. Mr. G. W. Roll. *A Congenital Anomaly of the Optic Disc.*
4. Mr. A. W. Ormond. *A Case of Double Anophthalmos... ..*
5. Mr. J. H. Parsons. *Microscopic Sections of Pseudo-Glioma due to a Congenital Membrane.*
6. Mr. Inglis Taylor. *Fenestrated Metallic Balls used by Prof. Pfluger in Mules' operation.*

7. Mr. Holmes Spicer. *A Case of 3d Nerve paresis with Argyl-Robertson Pupil and marked association of convergence and contraction of the pupil.*

8. Mr. R. Marcus Gunn. *Unusual Deposit of Inner Surface of each Cornea, of recent origin and slow development.*

C. Devereux Marshall.

W. Whitehead Gilfillan reports a case of spontaneous rupture of the eyeball in which there was no history of traumatism, nor was there any ulcerative process going on in the cornea. There was no staphyloma. Had there been any of these conditions, there would be nothing unusual about the case. The patient had well-marked arteriosclerosis, as might well be expected in a person of her age (87). It is possible that the straining at stool may have ruptured one of the vessels of the eye and produced the unusually large hemorrhage.—*Medical News.*

Some five years since Fox devised a method of implanting a glass ball into the orbital cavity where the eyeball has been removed. He finds this somewhat defective; that in about 33 per cent the method failed and the glass ball was expelled. Even when closing the wound and retaining the ball in situ there was still 15 per cent of expulsion. Eighteen months since he devised the present method, which he recommends. The eyelids are kept apart by the speculum, the conjunctiva is then grasped up and in above the inner canthus, and the tissues pulled out. He then passes a Beer's knife or curved keratome somewhat obliquely and well down through the tissues into the orbit, making the opening large enough to push in a gold ball. He enlarges this with curved scissors, separating the tissues from the cellular tissues around the orbit, affording a large pouch. He uses gold balls of 11, 12, 13 and 14 millimeters in diameter and inserts one through the opening, and holds it in place by what he calls the conformer—a metal shell with a circular opening in which the gold ball fits, corresponding to the cornea of the eye. The eyelids are closed over the conformer, which is left in place twenty-four hours. The results obtained by the method are perfect; no secondary trouble follows; all heal by first intention. The two stitches employed for closing the incision are taken out on the third day.

NEWS ITEMS.

PERSONALS AND ITEMS OF INTEREST SHOULD BE SENT TO
DR. FRANK ALLPORT, 92 STATE ST., CHICAGO.

OPHTHALMIC MYOLOGY, by G. C. Savage, M. D., of Nashville, Tenn. A systematic treatise on the ocular muscles is now in print. It contains 567 pages and is illustrated by sixty-one cuts and six plates. Price, $4.00 per copy. By sending to the OPHTHALMIC RECORD your order will be filled at once.

Dr. L. Webster Fox, of Philadelphia, has been visiting Senator Quay in St. Lucie, Fla.

Professor Hjort, in Christiana, has resigned his professorship. His successor is Dr. Schiotz.

Dr. Carl Zimmerman has been recently elected Vice President of the Milwaukee Medical Society.

Dr. Geo. F. Wise, of Tyronne, has gone to Philadelphia to be assistant of Dr. L. Webster Fox.

Dr. Geo. T. Stevens and wife, of New York, have been visiting Senator Quay's son in St. Lucie, Fla.

London has what is known as a spectacle mission, for those who cannot afford to buy glasses for themselves.

Dr. H. McI. Morton, of Minneapolis, has changed his office from the New York Life Building to the Andrus Building.

Dr. W. H. Crowe has been recently elected as clinical assistant in Ophthalmology in the Yale Medical School, New Haven, Conn.

Dr. Wm. R. Powell has been recently elected to the Ophthalmological Department of the Cooper Hospital, Camden, N. J.

General headquarters for the American Medical Association at its meetings in Saratoga next June will be the United States Hotel.

Drs. Henry DeW. Carvelle and Emdon Fritz have been elected Ophthalmic and Aural surgeons to the Elliott Hospital, Manchester, N. H.

Dr. W. L. Pyle will hereafter have charge of the Ophthalmological Department of Dr. Geo. M. Gould's weekly periodical, called American Medicine.

Dr. Paul Romer has been appointed privatdocent at the University of Würzburg, Dr. Ziegler-Huguenin the same at Zurich, and Dr. Rosalino at Pisa.

Drs. Geo. R. Rohrer and Walter B. Weidler have been recently elected to the Ophthalmological Department of the Lancaster General Hospital, Lancaster, Pa.

Dr. Lucien Howe, of Buffalo, N. Y., has received a gold medal for the second time from the New York State Medical Society relative to the new stain process for the muscles of the eye.

At a meeting of the Trustees of the Polyclinic Hospital of Philadelphia, held January 21st, Dr. Geo. C. Stout was appointed Professor of Diseases of the Ear to succeed Dr. G. Alexander Randall.

Edwin W. Pyle, M. D., University of Pennsylvania, 1873, assistant surgeon at the New York Eye and Ear Hospital, died of pneumonia, February 7, at his home in Jersey City, N. J., aged 52.

Prof. Peters, of Bonn, has been appointed professor-in-ordinary of ophthalmology at the University of Rostock, to succeed Prof. Axenfield, who, in his turn, succeeds Prof. Manz at Freiburg, resigned.

Prof. Richard Greeff has been appointed Executive Surgeon (Director) of the newly established Clinic for Eye patients in the Charité Hospital in Berlin.—*Deutsche Med. Wochenschr.,* Oct. 31, 1901, p. 776.

No Homeopathy in Japan.—We are advised, through Minister Buck, of Tokio, under date of December 12, 1901, that on July 20, 1899, the Central Sanitary Council resolved not to permit the practice of homeopathy in Japan.

Prof. Arthur König, late assistant of Helmhotz, then Director of the Physiological Institute, died in Berlin in his forty-sixth year. He was chief editor of the second edition of Helmhotz's Physiologische Optik, and the founder and editor of the Journal of Psychology and Physiology of the Organs of Special Sense, a periodical of a high scientific order.

The Manchester Royal Eye Hospital held its annual meeting January 23. It reported 22,973 out patients; its expenditures were £30 in excess of its income. Many foreign body cases have been treated in this institution the past year, as Manchester is a large manufacturing city. One interesting feature of the meeting was the receipt of a check for £1,000 from a grateful patient who was treated thirty years ago at the hospital.

The Eye and Ear Sections of the American Medical Association will hold their meetings in the Young Men's Christian Association Building at Saratoga. It was at first thought that the meetings would be held in the Grand Union Hotel, but the Committee of Arrangements have seen fit to change this, and have finally decided upon the Young Men's Christian Association Building. It is understood that the rooms will be large, airy, and convenient.

THE RECORD begs leave to state that it committed an error in its news items of last January, in stating that Drs. Jas. Black, J. S. Garrard, S. M. Miller and R. P. Oppenheimer had been elected on the staff of the City Hospital of Knoxville, Tenn., to represent the Eye, Ear, Nose and Throat Department. They are elected on the staff of Surgery, the Eye and Ear Surgeons being Drs. B. F. Young, C. M. Capps, C. H. Davis and J. H. Kincaid.

At the annual meeting of the Chicago Eye, Ear, Nose and Throat College the reports of the officers were presented and showed the first year in the new building and hospital to have been a very prosperous one. The following were named as Board of Directors for the ensuing year:

W. A. Fisher, M. D., President.
A. G. Wippern, M. D., Vice President.
J. R. Hoffman, M. D., Secretary.
Thomas Faith, M. D.
H. W. Woodruff, M. D.

Dr. Jeremiah T. Eskridge, the famous Neurologist who died at Denver, Colo., Jan. 16, 1902, has been a worker in Ophthalmology. He served on the Committee of the Philadelphia County Medical Society, of which Dr. Risley was Chairman, which examined the eyes of children in the Philadelphia public schools. After removal to Colorado he practiced Ophthalmology at Colorado Springs prior to his settling in Denver. He was an expert Ophthalmologist, and fully appreciated the importance of eye-strain.

Dr. M. F. Weymann, of St. Joseph, Mo., advocates the identification of criminals by the anatomical conformation of the fundus oculi, and draws attention to eight points connected with the disposition of the ateria-centralis retinæ as follows:

1. The method of division (dichotomous or otherwise).
2. The exact point of division.
3. The exact angle of the vessels with the primary meridians.
4. The exact distance of one divisional point from the other.
5. The relative size of the divided twigs.
6. The angle of division.
7. The course of the twigs (straight, curved, etc.).
8. The exact distance, everywhere and at every point, between venous and arterial branches (parallelism, convergence or divergence, twining, etc.).

Blind Masseurs.—The ability of the blind to successfully perform massage has been clearly demonstrated in Japan, where they are employed exclusively for this work. Their wonderful delicacy of touch has enabled them to acquire a high degree of proficiency, and therefore when massage was introduced into Russia their employment also became general in that country. At the Institute for the blind in St. Petersburg a considerable number of the students are carefully instructed in the best methods of performing massage and also in the main points of physiology and anatomy. Their introduction into other European countries has thus far not been attended with success, although Germany is now making arrangements tending to their permanent employment.

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ORIGINAL ARTICLES.

OPERATIVE INTERFERENCE IN CORNEAL COMPLICATIONS OF GONORRHOEAL OPHTHALMIA: TWELVE CASES.*

BY H. C. PARKER, M. D.
Senior Ophthalmic House Surgeon Massachusetts Charitable Eye and Ear Infirmary, Boston, Mass.

Most text-books of ophthalmology recommend operative interference in ulcerative conditions of the cornea in gonorrhoeal ophthalmia as in corneal ulceration from other causes; but I have been unable to find a report of a series of cases showing the results of operation in this condition.

Through the kindness of Dr. Cheney, who has allowed me to report his cases operated on at the Massachusetts Charitable Eye and Ear Infirmary, and Dr. Chandler, on whose service I had the opportunity of operating on five cases, I am enabled to report twelve cases.

CASE 1.

Miss A. L.; 24 years; duration before entrance, three weeks; O. D. only involved; smear positive.

First day.—Cornea shows large crescentic slough at periphery. Some chemosis; discharge quite moderate.

Third day.—Ulcer much larger with tendency to bulge. Central area of cornea hazy. *Saemisch.* Dr. Cheney.

Sixth day.—Ulcer not progressing. Anterior chamber evacuated with blunt probe.

Thirteenth day.—Center of cornea clear. Area of ulceration shows beginning repair.

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*Read before the New England Ophthalmological Society, Feb. 11, 1902.

Twentieth day.—Center of cornea clear. Pupil somewhat irregular, but plainly seen. Iris quite firmly attached at area of ulceration. Scar healing well. Eye nearly white. No vision recorded.

CASE 2.

Mr. H. F.; 26 years; duration four days before entrance; smear positive; O. S. only involved.

First day.—Cornea clear except for small depression at upper inner side. Marked chemosis and discharge.

Fourth day.—Cornea generally hazy; area of infiltration near center.

Eighth day.—Large crescentic ulcer of cornea at outer side. *Saemisch.* Dr. Cheney. Center of cornea fairly clear except for faint superficial haze.

Ninth day.—Wound again opened with blunt probe and anterior chamber evacuated.

Sixteenth day.—Ulcerated area has not extended. Small prolapse of iris at upper outer margin of cornea.

Twenty-third day.—Slight hypopyon. Prolapse slightly larger.

Forty-third day.—Cornea well healed, leaving pupillary area of cornea quite clear. Eye white. No discharge for over a week. No vision recorded.

CASE 3.

Dr. M.; 38 years; duration one day; O. D. only; smear positive.

First day.—Marked discharge; chemosis and oedema of the lids great. Cornea clear.

Second day.—In the morning the cornea was still apparently clear. Chemosed conjunctiva overhangs cornea to a great extent. In the evening the cornea was hazy and slightly roughened in the lower outer quadrant.

Third day.—Lids more swollen; chemosis increased. General superficial haze of entire cornea.

Fourth day.—Roughened area of cornea shows deeper haze. Conjunctiva of upper lid and globe shows an adherent infiltration which bleeds on pressure. No bacilli but many gonococci found in smear; culture negative.

Fifth day.—Cornea opaque except for small area at upper outer quadrant. Discharge much more purulent.

Sixth day.—Cornea looked a trifle less dense. Discharge very slightly less. Chemosis increased. In the evening the cornea showed large bulging area at lower outer quadrant.

Seventh day.—Bulging still greater at lower outer side.

Saemisch by Dr. Cheney, through most prominent part of bulging area. No bleeding; no prolapse.

Eighth day.—Slough of cornea shows tendency to separate. Cornea flattened somewhat.

Ninth day.—Cornea projecting with sharp edge over chemosed conjunctiva. Whole cornea densely infiltrated and yellow.

Fourteenth day.—Cornea has separated, leaving iris and lens cicatrizing.

Twenty-first day.—Discharge less. Considerable bulging of iris.

Twenty-seventh day.—Large anterior staphyloma.

Forty-fourth day.—Eye enucleated.

CASE 4.

Mr. J. H.; 22 years; duration nine days before entrance; O. D. only involved; smear positive.

First day.—Much chemosis overlapping cornea everywhere. Much purulent discharge. Cornea shows rather large central loss of substance, which, however, is not densely infiltrated.

Second day.—Ulcer of cornea larger. It is about 6 mm. in diameter. Base very thin and bulging. Cornea generally hazy. Paracentesis by Dr. Cheney, in upper inner quadrant near limbus. Loss of much aqueous. No prolapse.

Third day.—Anterior chamber reëstablished. Whole surface of ulcer covered with yellowish slough. Periphery of cornea clearing.

Fourth day.—Slough less and seems more sharply defined. Periphery fairly clear.

Seventh day.—Eye wide open. Almost no discharge.

Sixteenth day.—Slight tendency to bulge at site of former ulcer.

Twenty-third day.—Cornea clearing rapidly. Area of ulcer flat.

Thirty-second day.—V. O. D. = fingers at 12 feet. Cornea much clearer and quite smooth.

CASE 5.

Cyril F.; 6 years; duration ten days before entrance; O. D. only involved; smear positive.

First day.—Much injection. Some chemosis. Cornea shows ulceration involving nearly half of surface. Hypopyon in anterior chamber of about 2 mm.

Second day.—*Paracentesis* by Dr. Cheney in lower inner quadrant near ulcer.

Third day.—Increased ulceration. Anterior chamber reopened.

Fifth day.—Anterior chamber again evacuated. Patient opens eye quite well. Cornea clearing.

Seventh day.—Anterior chamber reopened. Less redness; less discharge.

Tenth day.—Ulcer healing well; no hypopyon.

Twenty-fifth day.—Ulcer well healed; rest of cornea clear. Eye white. No vision recorded.

Case 6.

Albert S.; 10 days; duration before entrance, seven days; O. U. involved; smear positive.

First day.—O. D. cornea, dense yellow slough involving lower half. O. S. cornea below center shows a yellow opacity which is quite superficial; epithelium is generally hazy.

Second day.—O. D. slough of cornea has separated with extensive prolapse of iris. O. S. infiltrated area larger. Cornea throughout more dense. *Saemisch* by Dr. Cheney.

Third day.—O. S. shows no advancement in infiltration. Anterior chamber reëstablished.

Eighth day.—O. S. anterior chamber evacuated during examination. Cornea above clear; iris plainly seen.

Fifteenth day.—Site of ulcer O. S. healed and vascularized. Rest of cornea perfectly clear. Normal anterior chamber.

Twenty-first day.—O. S. white; no discharge. Scar below pupillary area well healed and about 2 mm. in diameter.

Seen O. P. D. two months later O. D. showed large staphyloma (anterior). O. S. cornea shows at site of former ulceration a nebula about 1½ mm. in diameter. Pupil round and reacts well. Cornea clear; anterior chamber of normal depth.

Case 7.

F. G.; male; 37 years; duration two days; O. D. only involved; smear positive.

First day.—Much chemosis overlapping cornea. Cornea clear. Marked purulent discharge.

Third day.—Cornea clear until last evening, when a faint, very superficial haze was noticed near limbus toward temporal side. This morning there is a large, deeply infiltrated, crescentic ulcer of cornea on temporal side about 7 mm. in length and 4 mm. wide. Permission not obtained to operate until four in the afternoon, when Dr. Cheney cut throughout entire extent of ulcer with bent broad needle. Cornea at this time was also hazy above so that only a small portion remained clear. Anterior chamber reëvacuated later the same evening.

Fifth day.—Corneal infiltration has advanced until only a small V-shaped area toward nasal remains clear. Prolapse of iris down and out. Pupil dilated and irregular, being drawn toward prolapse. V. O. D. = shadows.

Seventh day.—V-shaped area still clear.

Thirteenth day.—Area of clear cornea larger. V. O. D. = fingers at 3 feet.

Twenty-first day.—Nasal half of cornea clear. Prolapse on temporal side flattening.

Forty-fifth day.—Area of prolapse well healed and flat. About half of cornea clear. V. O. D. = fingers at 12 feet. Eye white.

Case 8.

John L.; 18 days; duration one week; O. U. involved; smear positive.

First day.—Cornea O. D. shows very faint central superficial haze. O. S. toward temporal side of cornea is seen a circular ulcer with a very thin base, about 2 mm. in diameter. Rest of cornea generally hazy. *Saemisch.* Dr. Parker.

Third day.—Very slight prolapse at site of ulcer O. S. No increased infiltration. Anterior chamber evacuated through original wound.

Sixth day.—Cornea O. S. quite clear except at site of ulceration.

Ninth day.—Site of ulcer well healed and flat.

Twenty-seventh day.—Eye white. Site of ulcer covered with epithelium is faintly seen. Pupil widely dilated and quite regular.

Case 9.

William S.; 19 years; duration one day; O. D. only involved; smear positive.

First day.—Cornea below center near limbus shows slight superficial loss of substance about 2 mm. in diameter. Much discharge, chemosis, etc.

Fourth day.—Ulceration extending and is now very dense, involving the deep tissues of cornea.

Sixth day.—Slough covers the entire ulcerated area. Cornea shows general haze. *Saemisch* by Dr. Parker.

Seventh day.—Anterior chamber again evacuated with Graefe knife. Knife was passed through iris which had bulged forward into wound. No increased ulceration.

Fourteenth day.—Anterior chamber again evacuated. Cornea above clear. Pupil small (pilocarpine) and plainly seen.

Twenty-fourth day.—Scar well healed and flat. Anterior chamber slightly narrow below. About three-fourths of cornea clear. V. O. D. = $\frac{1}{10}$ +.

CASE 10.

Fred H.; 22 years; duration twelve hours; O. S. only involved; smear positive.

First day.—Cornea clear except for superficial loss of substance about 2 mm. in diameter below, near limbus. Very great œdema and chemosis; much purulent discharge.

Second day.—Cornea generally hazy. Area of deep infiltration below.

Fourth day.—Iris not seen. Cornea densely infiltrated. Area of deep ulceration covered with yellow slough and bulging considerably. *Saemisch* by Dr. Parker.

Seventh day.—Anterior chamber has been opened daily since operation. Cornea above clearing rapidly.

Fourteenth day.—Anterior chamber reëstablished. Ulcerated area bulging. Cut made through bulging mass with Graefe knife, evacuating anterior chamber.

Twentieth day.—Cornea quite clear above, still bulging below. Considerable chemosis.

Twenty-third day.—Abscission of prolapsed iris as the wound showed no tendency to heal..

Twenty-fifth day.—Cornea flat at site of prolapse. Almost no discharge; no chemosis. Eye wide open.

Thirtieth day.—Scar well healed. Pupil plainly seen when patient looks down. Cornea clear except at site of prolapse. This area is about 3 mm. in diameter.

Thirty-eighth day.—Eye white and quiet. Pupil central and nearly round. V. O. S. $=\frac{2}{10}$

CASE 11.

Edith H.; three weeks; duration 18 days; smear positive.

First day.—O. D. shows general superficial haze of cornea. O. D. toward nasal side of cornea near limbus is seen a small circular ulcer, deeply evacuated. Rest of cornea hazy.

Second day.—Cornea shows increased ulceration. *Saemisch* by Dr. Parker.

Fourth day.—Anterior chamber evacuated during examination. Cornea clearing except at site of ulceration. Discharge moderate.

Sixth day.—Iris plainly seen. Anterior chamber evacuated. No increased ulceration.

Twelfth day.—Cornea clear except at site of ulceration, which is well filled in and cicatrizing.

Eighteenth day.—Eye white. Pupil round and central. Very small anterior synechia to wound.

Case 12.

John McL.; 36 years; duration two weeks; O. D. only involved; smear positive.

First day.—Cornea shows dense haze below with some bulging. Dense haze up and out; very small portion of cornea toward nasal side clear. Pupil not seen.

Second day.—*Saemisch* by Dr. Parker. Long cut made below where bulging was most prominent. Cornea at this time was generally hazy.

Fifth day.—Cornea still generally hazy, but iris is faintly seen on nasal side close to limbus. Iris prolapsed into wound. Anterior chamber reëstablished. Prolapse abscised and anterior chamber evacuated. Anterior chamber evacuated daily until the 18th day, when it was allowed to reëstablish.

Eighteenth day.—Slight bulging at site of ulceration below. Iris seen up and in; one-fourth of cornea clear.

Twenty-third day.—Pupil seen easily above site of prolapse; over half of iris seen. Cornea slightly hazy up and out. Up and in the cornea is perfectly clear.

Twenty-eighth day.—Scar flat and well healed. Normal anterior chamber. Eye nearly white; almost no discharge. All of iris seen, except that under site of old ulcer, which is now about 2½ mm. in diameter.

Fortieth day.—Eye nearly white. Cornea perfectly well healed, but shows opacity involving somewhat more than temporal half. This opacity is not dense, as iris is plainly seen through it. Pupil round and central, reacting slightly to light. Site of ulcer clearing quite well except in center. No discharge. V. O. D. = fingers at 10 feet. Patient seen O. P. D. four weeks later. Eye was white and quiet; no trouble since discharge. V. O. D. = $\frac{1}{10}$ minus, with partially dilated pupil.

Conclusions.

It will be seen that in these cases only one resulted in loss of the eye; in the other eleven the corneæ cleared rapidly after operation, and the ultimate result was a useful eye in each case.

In no case was there a secondary infection leading to a panophthalmitis. In two cases, however, there was a hypopyon which soon cleared up. The Saemisch operation is not only justifiable, but is indicated, when the ulceration is extending rapidly and tending toward perforation; as is often manifested by a bulging of the membrane Descemet. In most instances the operation should be performed early. This is especially advisable in adults, since these cases go so rapidly to pieces when once they are fairly started. The operation, as Saemisch advises, should be from clear cornea to clear cornea, through the center of the ulcerated area. As in the Saemisch operation for other ulcerative conditions, it is necessary to keep the wound open and draining well. It may be necessary to open the wound daily, and in some cases twice a day. This can usually be accomplished with a blunt probe or spatula.

After operation the discharge and œdema have rapidly subsided and the patient has almost at once been made more comfortable.

Admitting that some cases of spontaneous rupture of the cornea at the site of the ulcer stops all further progress of the disease and the eye goes on to recovery as in cases operated upon, it seems justifiable to forestall nature and operate early with the chance of saving more clear cornea and therefore a more useful eye.

Most cases of ulceration start at or near the periphery rather than centrally, and if we operate early the chance of saving clear cornea over the pupillary area is greatly increased. When possible a Graefe knife is the best instrument to use, but when the ulceration is situated laterly a keratome or bent broad needle will be useful. The bent broad needle is sometimes more easily handled than the Graefe knife in the presence of much chemosis.

Looking over four years' records, I selected twelve cases as nearly parallel as possible, which were unoperated, and the ultimate results, certainly justify operation, even in the midst of the most purulent discharge, when, of course, these ulcerations are most liable to occur.

Cases of deep ulceration of the cornea, especially in adults, almost invariably resulted in total loss of vision, and in most cases large bulging staphylomata.

Meierhoff (*N. Y. Med Jour.*) observed two cases of clouding of the cornea in young babies after the prolonged use of ice-cold pledgets. The suspected specific ophthalmia proved in each case to be merely a mild catarrh. The damage is thought to have been wrought by interference with the nutrition of the cornea. Dry, warm applications affected a cure.

SUBPERIOSTAL BLOODCYST OF THE ORBIT; REPORT OF A CASE.

BY R. DENIG, M. D.,
NEW YORK.

The patient, a physician, consulted me on the first of June, 1900. He complained that for five months he had noticed a protrusion of his left eye. An examination disclosed nearly all the conditions of a retrobulbar tumor, which should be localized behind and above the lachrymal gland.

On the sixth of June, Dr. F. Lange performed Kroenlein's operation. After the osteo-plastic resection of the outer orbital wall, an incision was carried down the orbital tissue. An elastic tumor could then be felt behind and above the lachrymal gland, which seemed to be connected with the orbital wall. In spite of careful operating, the capsule burst, discharging a brownish bloody fluid and thus preventing a microscopical examination. In trying to remove the sack it was found that only one side of the tumor was covered with membrane, while the bare bone of the orbital wall was exposed, being entirely without periosteum. Above the lachrymal gland, further back in the orbit, a slight roughness and thickening of the bone could be felt. The tumor, which was of pear shape, extended up and back towards the roof of the orbit. Here a hole in the bone about the size of a dime was detected; the dura was plainly visible, and there was distinct pulsation.

The diagnosis of a subperiostal blood-cyst made by us in loco was confirmed by a microscopical examination of the excised periostal sack.

From the history of the case, it appeared that the patient had received a severe injury of the left orbital wall in a duel ten years before. It seems to be highly probable that the injury caused a fissure in the orbital wall, followed by a slight hemorrhage beneath the periosteum. This fissure, with the slowly growing cyst, was capable of superinducing the perforation of the orbital roof, as in a few cases of dermoid cysts which are to be found in the books. Later on some unknown cause, probably the proliferation of the osteophytes, brought about an irritation producing exudation, thus enlarging the original cyst towards the anterior part of the orbit.

Cases of spontaneous sub-periostal hemorrhages have been described by Holmes Spicer. They occurred in infants suffering from malnutrition. A traumatic sub-periostal blood-cyst has been observed by Baquis in a boy of eleven; it disappeared within four days.

I find no report of a case similar to the one I have described.

TWO CASES OF LARGE INTRAOCULAR HEMORRHAGE: ONE FOLLOWING CATARACT EXTRACTION, AND ONE AFTER RUPTURE OF AN ULCERATED CORNEA.

BY M. W. ZIMMERMAN, M. D.,
PHILADELPHIA.

My only experience with destructive intraocular hemorrhage following cataract operation occurred under the following conditions: The patient, Eliza M., an Irish woman aged 59 years, had been successfully operated upon by me for cataract in the left eye, about one year previously, without accident during operation or convalescence, except delay in closing of the corneal wound. The anterior chamber was not established until the eighth day, and at one time there was a shred of perfectly healthy vitreous between the lips of the wound. The ultimate result gave a vision of *one half,* and ability to thread the ordinary sewing needle. This vision has remained unchanged during subsequent events, and it has not been necessary to perform a secondary operation.

In May, 1900, she was readmitted to the Germantown Hospital, and on the 21st the right eye was operated upon. The operation was under apparently favorable conditions, but owing to a failure of the iris to dilate under the influence of cocaine, I had decided to make a moderate iridectomy. The incision was entirely in clear cornea, and throughout quite in the plane of the iris. The iris presented over the knife during the incision, but was disregarded and slipped back without injury. The incision was easily made and without violent manipulation, but immediately after removing the knife there was a spasm of the eyelids, accompanied by a faint moan and a forcible delivery of the lens with a considerable quantity of colorless fluid vitreous. The blepharostat was in position at the time, and prevented severe pressure on the lids. The instruments were quickly removed, the everted corneal flap replaced and a temporary dressing applied for fifteen minutes. When again opened the cornea was in position, and there was no prolapse of the iris, but a constant flow of vitreous appeared whenever the lid was raised, and it was thought unwise to attempt filling the ball with normal salt solution. Solution of eserine was instilled, and a very light pressure bandage applied without permitting the patient to make the slightest effort. Small doses of morphine and bromide were given, and a careful watch was maintained by a special nurse.

Six hours after the operation, the house surgeon found bright red blood staining the dressings and running into the ear, as well as on the pillow. Owing to a delay in receiving the message, I did not see the patient for two hours after the bleeding began. From the appearance of the dressings it was apparent that the hemorrhage had been moderate in amount. The patient vomited several times, and it was noticeable that from the time of the incision, she remained in a state of nervousness and apprehension which she could not explain. She insisted that at no time had there been any great pain. The clots external to the closed eyelids were removed, and a moist bichloride dressing was applied with pressure. There was no further medication except on account of persistent nausea. During the following night bleeding continued with occasional vomiting, but the dressings were not removed until twenty eight hours after the operation and twenty two hours after the onset of hemorrhage. The eye was opened and all clots cleanly trimmed away, in an effort to secure coaptation of the wound. Incision through the clot gave great pain but did not re-establish hemorrhage. The patient declined immediate enucleation, and convalescence was greatly prolonged by edema of the conjunctiva, and swelling on the same side of the face, with much pain, for many days. She was discharged from the hospital with a small atrophic eye, showing very little cornea and entirely without tenderness.

This case unfortunately teaches nothing of the etiology of hemorrhages occurring under these conditions. Both eyes previous to operation gave a good candle field, and failed to show any disease whatever, except the opaque lenses. No glaucomatous symptoms have ever been present. The kidney secretion was in both instances normal, and the superficial arteries were not unduly sclerosed. There was atrophic nasal catarrh. There was very extensive scarring of the face and extremities, which in the legs was sufficient to seriously cripple her, and require the use of crutches. This the patient reported had been present since early childhood, and was the result of numerous abscesses following vaccination. The left arm showed at one point, great loss of tissue extending to the bone, and this was said to be the site of inoculation. The appearance was that of extensive burns, but the patient's explanation is probably true.

The following case is one in which a similar hemorrhage ocurred under very unusual conditions, and was reported to the Ophthalmic Section of the Philadelphia College of Physicians at the January meeting in 1899.

The patient was a stout, healthy working woman, aged 56 years, with a negative family and personal history, who came under my care at the Germantown Hospital in July, 1892, reporting the right eye to have been acutely inflamed for several weeks. A very large ulcer was found which involved the entire corneal surface except a narrow zone at the periphery. There had been a great loss of tissue, which I estimated at one half the total corneal thickness, and singularly uniform throughout the affected area. The edges of the excavation were infiltrated, and in the lower quadrant there was a distinct pocket of pus between layers of comparatively healthy corneal tissue. Pus also existed in the anterior chamber, forming about one third of its contents. There was an old and complete occlusion of the lachrymonasal duct on the same side.

The tear duct was at once opened thoroughly by incisions involving its entire length, followed by forcible dilatation and flushing with a saturated solution of boracic acid. The infiltrated margins of the ulcer were sparingly touched by the galvano-cautery point, but its floor was not molested in any way. A solution of eserine was used with iodoform in substance, and a firm bandage applied. The patient was kept very quiet in bed, and morphia given in sufficient quantities to prevent restlessness. After the first few hours, pain ceased entirely and very soon a favorable change could be noticed, especially partial absorption of pus from the anterior chamber. On the sixth day after operation the patient suddenly complained of great pain in and about the eye, and within one hour blood began to show through the outer dressings. No history of injury or sudden movement on the part of the patient could be obtained. Upon removing the dressings a large clot completely covering the eyeball was found issuing from a linear rupture in the cornea, involving the whole length of diseased tissue. The line of rupture was slightly irregular but almost exactly horizontal, and about 7 mm. in length. The lens had been forced through the opening almost uninjured, and was found in the coagulated blood. The patient declined immediate enucleation but at the end of two weeks was induced by the uncontrollable pain and slight bleeding, to consent, and the ball was removed under ether.

The subsequent history is unimportant, being that of a normal recovery. Previous to the above accident, no mention had been made of any prior disease in the affected eye, but now the patient reported the appearance of mild glaucomatous symptoms several years before, with many recurrences. In March, 1891, fifteen months before I saw her, she had been treated by the late Dr. George T. Lewis, whose notes show the conditions to have been those of a painful chronic glaucoma, without useful vision. Operation was considered inadvisable at that time, and recovery of comfort took place under treatment by eserine.

Examination of the specimen demonstrated an actual tearing of corneal tissue throughout the wound, and the absence of perforation by ulceration at any point. The tissue forming the floor of the ulcer was remarkably uniform in thickness, and to this fact, in my opinion, is due the great length of the tear. Had there been perforation in the ordinary manner, sufficient of the ocular contents would have escaped to prevent the sudden pressure required to burst the weakened coat. Nothing certain can be known as to the exact sequence of events, but it is at least probable that the first step was a lowered intraocular tension due to the thinning of the cornea, followed by a small hemorrhagic leaking from one of the diseased retinal vessels. This sudden addition to the ocular contents would be sufficient to cause rapid and notable rise in tension, followed by a yielding of the weakened cornea and then the final hemorrhage. Such a rent must necessarily have been sudden, and it would relieve the diseased intraocular vessels of support in much the same manner as an operative incision, and quite as effectually.

The treatment was in my opinion rational, and probably exerted no influence upon the result. At no point had the cautery been applied to tissue which was subsequently torn. Paracentesis of the anterior chamber, which was considered, would in all probability have been followed by the same conditions. This previous glaucomatous state was not suspected by me, as the more recent lesions entirely concealed the evidence. The tension was not investigated, but thinning of the cornea had certainly reduced it, and manipulation might have caused the accident which occurred later.

MUSCLE TUCKING—A REPORT OF CASES AND CONCLUSIONS.

BY DR. J. ELLIOTT COLBURN,
CHICAGO, ILL.

Illustrated.

In May, 1886, while preparing to do the Prince operation for advancement, it occurred to me to try and simplify the procedure. It was accomplished in this way:

The incision was made over and parallel to the attachment of, in this case, the internal rectus muscle; another at right angles to this and parallel to the lower border of the tendon, extending towards the caruncle. The triangular flap thus formed was retracted by a double hook, Figs. 3 and 6, exposing the tendon for some distance. The suture was introduced, passing through the tendon at its point of attachment, thence beneath the capsule along the upper margin of the tendon as far back as was deemed best, downward through the tendon, and backward to the point of entrance. The single suture is then drawn and tied, the conjunctival flap returned to its place and held by a suture. After three days the superficial suture was removed; the deep one three days later. The result was perfect. Six weeks later the slight elevation formed by knuckling of the tendon was scarcely noticeable. One year subsequent it had totally disappeared and there was perfect parallelism.

The preceding note gives my first experience with muscle tucking. It was read in connection with a discussion which took place in Cincinnati in 1888 at a meeting of the American Medical Association.

My purpose in bringing up this subject of muscle tucking or knuckling for shortening a rectus muscle is to give my experience with the operation and my reasons for abandoning it. The recent revival of the subject may render my experience and report interesting.

The two instruments which I devised were crude conceits. The first, a double tenaculum, used first in the simple tucking or knuckling operation with the tendon exposed, and later in elevating the tendon in the subconjunctival operation. Fig. 1.

The second instrument was remodeled from an old pair of ear forceps and was not unlike the instrument devised by Dr. Todd, though very much less convenient. Fig. 2 and 6.

The histories of the operations are for convenience arranged according to the method employed in three groups, and to distinguish them, designated as simple tuck, Fig. 3; advanced tuck, Fig. 4 and 5, and subconjunctival tuck, Fig. 7.

Simple tucking, four cases. First case the one referred to in first report. Second case, boy aged 14, convergent squint, left eye fixing, refracted and three months later, tenotomy of squinting eye, two months later tenotomy of fixing eye, three months later tucking of the externus of squinting eye. Result R. V. $\frac{20}{40}$, L. V. $\frac{20}{60}$ parallelism, with head in good position, lateral right abduction limited, left abduction normal. R. & L. abduction normal.

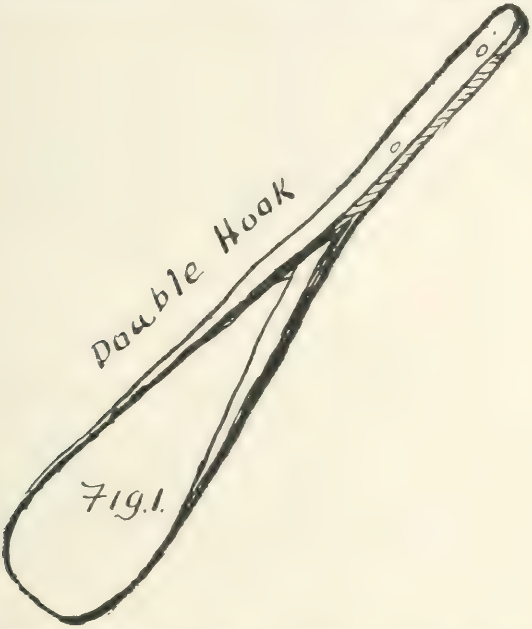


Fig. 1.

The fault in the movement of the abduction of the right eye caused confusing diplopia. The externus muscle was uncovered and the tendon found to be adherent at a point about 10 mm. posterior to the muscle attachment, and that most of the knuckle was unabsorbed.

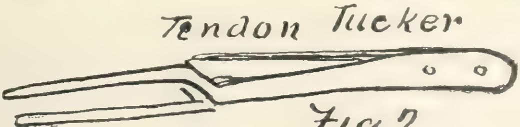


Fig 2

The tendon was freed from its attachment, but soon reattached. I lost sight of the patient.

Third patient, boy aged 13. Left, convergent squint, amblyopia, eye convergent 60 degrees, refracted.

Later, tenotomy and shortening by tucking. The folds made as close to the attachment as possible; result, apparent parallelism. The knuckle remained as a disfiguring tumor as long as the child was under observation. Rotation was good in all directions.

Fourth case: Divergent squint, myopia. Patient male, aged 34, tucking operation on squinting eye. Noyes' operation for advancement on the fixing. Result, apparent parallelism, with impaired convergence of the eye in which the knuckling operation was performed, and perfect movement in the fellow eye.

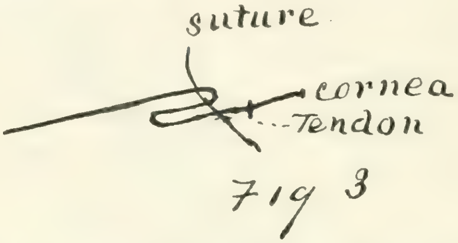


Fig 3

Later the tucked tendon was freed, the tendon unfolded and the muscle advanced by Noyes' method, with good result.

The advancing tuck operations (Figs. 9 and 6). First case: Girl aged 15. Convergent squint, high hypermetropia in undeveloped orbits. Tenotomy and tucking of both lateral abductors. The tendons were folded forward and attached near the sclero-corneal junction. (Fig. 4.)

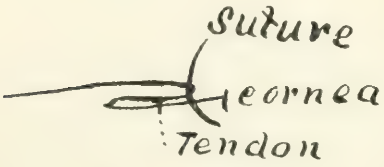


Fig 4

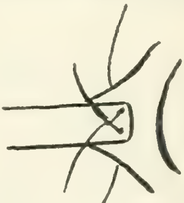


Fig 5

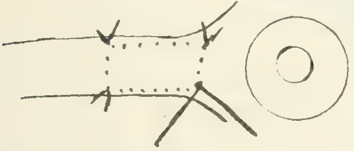
Results, the lower stitch in the right externus, while it held the muscle in position for six days and did not suppurate, failed to secure adhesion, the result was a slight torsion. The fellow eye maintained its position and free movements, though the thickening remained for eighteen months or as long as I had the patient under observation.

The torted eye was reoperated by a simple shortening, and the result was satisfactory.

Case No. 2 and No. 3 of this group made good recoveries, but the folded tendon still remained as a disfiguring tumor.

Case four: Male, aged 18. Divergent squint, high myopia. Both adductors tucked, complete failure to hold in the left eye and partial failure in the right. The wounds in this case did not heal promptly, though the stitches held to the seventh day. Four months later a Prince advancement secured a good result.

Case five: Myopia, aged 32, male. In this case the tendon was folded forward at the sclero-tendonous attachment. The immediate result was perfect so far as the position and movements of the eye was concerned, but it relapsed during the year and a Stevens advancement was done to secure the eye in position. At the time of the second operation it was found that the tendon had freed itself from its tucked attachment and had assumed its former position.



Dotted line suture in position To tie.

Fig 7

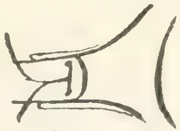


Fig 6

Cases six and seven: Operated for convergent squint, resulted favorably, but the thickening resulting from the folded tendons remained as annoying scars.

Subconjunctival tucking. Fig. 7.

Case 1. Hypermetropia, convergent squint; boy aged 15; graduated tenotomy and shortening of both external recti, by subconjunctival tucking.

Without opening the conjunctiva, the externus was grasped with fixation forceps and the double tenaculum (Fig. 1) passed beneath the tendon and the tendon slightly elevated. A suture was passed beneath the conjunctiva and the needle reentered and passed through the tendon about one mm. from its superior margin and as far back as is desired to secure it for advancing and brought out after transfixing the sclera just back of the sclero-corneal margin. It was again reentered and passed downward 3 mm. and brought out. The second needle was entered at the lower margin of the tendon, passed forward and brought out after being caught in the sclera, in the same manner as the first needle. The suture was now drawn tight, the tendon folded by the aid of the tenaculum and when in position, tied. We had now secured a tuck in the tendon by a single suture. Seven days later the suture was removed and the result was satisfactory so far as the position of the eye was concerned, but the reaction following the operation was considerable, and a permanent thickening remained.

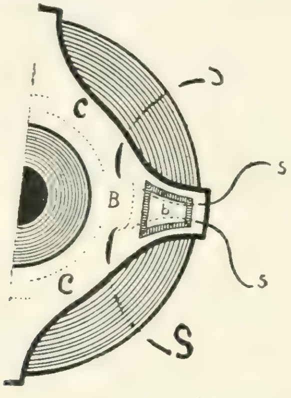


Fig 8

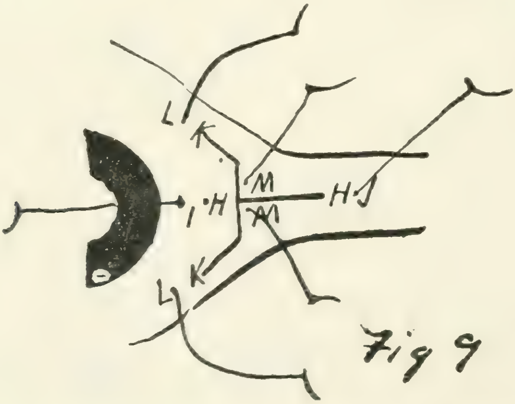


Fig 9

Case 2. Convergent squint; male, aged 30. Operated as above. Result, good position, thick disfiguring nodule on folded tendon.

Case 3. Paralysis of right extenus, following injury to head. Male, aged 43. Guarded tenotomy of internus and subconjunctival tucking of externus. Result good, but slight thickening of folded tendon.

Case 4. Convergent squint; male, aged 18. Tenotomy and shortening by subconjunctival tucking; slight reaction and a good result with some thickening, lasting two years at least.

The cases reported were all refracted previous to the operations and time and care employed for a sufficient time to determine the necessity for operations.

My objections to the simple tucking operation are the danger of nonadhesion between the tendon and the ocular wall and the persistency of the thickening resulting from the folded tendon, which is very marked when the eye is turned to expose the site of the operation.

The same objection holds regarding the advance tucking operations, except for the danger of adhesion. The tuck is or should be made well forward. The thickening is always permanent and sometimes very disfiguring.

The subconjunctival tuck has nothing to recommend it. The reaction is severe. The handling is difficult and the results less satisfactory.

My preference is for a combined operation of section and tucking, which is really shortening of the tendon, and not an advancement. The operation which I prefer is described as follows (Fig. 9):

Open the conjunctiva just anterior to the tendon attachment, dissect backward, making a tongue-shaped flap. Grasp the tendon and make a button hole extending across the attachment, with the exception of a narrow band of fibers on either side as in graduated tenotomy, K. K.

Split the tendon through its center as far back as is desired to secure sufficient shortening, H. H. You now have a T or Y shaped incision in the tendon. Introduce a suture posterior to the opening in the distal end of the incision in the tendon; reenter the sclera at the cut end of the tendon, and bring the needle out at I, introduce two sutures at M and L M'. L'. Tie first the central suture, then the lateral sutures. The operation is simple. No special instruments are required and there is no danger of displacing the tendon.

There is no deformity following the operation. The dosage is accurately determined. There is no permanent thickening and the results are certain.

When a small amount of shortening is desired I prefer the modified Stevens operation for shortening (Fig. 8).

CONGENITAL APHAKIA WITH MICROPHTHALMUS.

BY W. K. CHERRYHOLMES, M. D.
HAMILTON, OHIO.

In November, 1894, a boy eight years old came to me for treatment for his eyes.

A casual glance at the patient's face instantly impressed the observer that he was viewing something quite out of the ordinary. The boy was somewhat dwarfish in appearance, with a head of fair size but irregular in contour; the forehead was prominent and bulging; the hair thin and light in color; the nose was extremely narrow and aquiline to an exaggerated degree; the eyes were extraordinarily small, with an interpupillary distance of only 1⅞ inches.

My patient was wearing a + 1.00 D. sph. lens over each eye, his spectacles having been prescribed for him by an ophthalmologist. These glasses had never given any comfort that the patient was aware of.

An examination revealed that this youth's eyes were congenitally aphakic, and associated with this there was a condition of microphthalmus. In addition there was a very exaggerated rotary nystagmus, together with convergent strabismus; the left eye being turned inwards, with vision fixed for distance, about 25°. Both eyes were highly amblyopic; the left, however, suffering most in this respect. The right eye was habitually used for all purposes, the patient not possessing binocular vision.

Vision R. $\frac{5}{200}$ c + 30.00 D. sph. = $\frac{18}{200}$.
Vision L. $\frac{5}{200}$ c + 30.00 D. sph. = $\frac{6}{200}$.

Not the least remarkable point in connection with this case is the fact that this boy, in accordance with my advice, has worn constantly since 1894 a + 30.00 D. sph. lens over each eye with great satisfaction. He will not go without his glasses an hour if he can avoid it. He attended school for five years after securing these spectacles, and insists that they were of the greatest service to him in his school work.

Mentally the patient is unusually bright, with quick perceptions.

The toleration of such an enormously strong pair of convex lenses surpasses anything of this sort in my observation or experience.

THE
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A MONTHLY REVIEW OF THE PROGRESS
OF OPHTHALMOLOGY.

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REVIEW OF PROGRESS OF OPHTHALMOLOGY.

THE TOXIC AMBLYOPIAS, BEING A REVIEW OF SOME RECENT LITERATURE ON THE SUBJECT.

BY G. E. DE SCHWEINITZ, A. M., M. D.

It is to be regretted, as Uhthoff[1] states, that a classification of the substances which come into consideration in a discussion of the toxic amblyopias cannot be made from an entirely uniform standpoint, but he is unwilling to give them simply in alphabetical list. The writer's attempted classification, based upon prominent physiological and toxic actions of the various drugs which produce deleterious effects upon the visual apparatus, possesses objections which far outweigh any slight advantages that it may have. The classification of Casey Wood is, in many respects, even at the present time, the most satisfactory one that has been suggested.[2]

Recent work with new histological methods indicates that it may be possible soon to make a pathological classification of the toxic amblyopias, although at present we are not in a position to dispense entirely with a clinical terminology. Uhthoff[3] has divided these toxæmias into the *exogenous intoxications*, which include the visual disturbances produced by the agents that are ordinarily credited with the power of originating the so-called toxic amblyopias, and the *auto-intoxications*, which include the pathological affections of the digestive tract which create abnormal fermentations and decompositions, and those which have to do with the presence of parasites in the intestines.

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[1] Graefe-Saemisch, Handbuch der Gesammten Augenheilkunde, 32 Lieferung, Leipsic, 1901.

[2] The writer has somewhat modified this. See his article, Toxic Amblyopias, System of Diseases of the Eye, Edited by Norris & Oliver, Vol. IV.

[3] XIIIe Congres International de Medicine, Paris, 1900.

While the difficulty of separating the amblyopia which occurs under the influence of alcohol when this refers to the active agent contained in the ordinary alcoholic beverages which are consumed from that which results from tobacco, necessarily continues, the distinct affection *alcohol-amblyopia,* which should be named ethyl-alcohol amblyopia, must certainly be allowed. On this point the statistics of Adler[4] are important. Among 100 private patients he concludes that alcohol was the greatest factor in 86 per cent, but nearly all of the patients smoked more or less; only 4 per cent maintained that they were non-smokers. In 12 per cent the patients smoked and did not drink. In his hospital practice there were 19 per cent of nicotine amblyopias and 81 per cent of alcohol amblyopias, but he frankly admits that the testimony of the patients, in so far as their habits were concerned, was not trustworthy.

The occupations of Adler's patients suffering from toxic amblyopia are interesting:

Hotel and restaurant keepers	32 per cent
Waiters	23 per cent
Builders	9 per cent
Coachmen and railroad employees	9 per cent
Butchers and bakers	5 per cent
Farmers	4 per cent
Clergymen and pensioned officers	3 per cent
Factory owners	3 per cent
Printers	3 per cent
Various other employments	3 per cent

There was one doctor and one lawyer. Uhthoff's examination of 327 cases of intoxication amblyopia revealed a pure tobacco-amblyopia in 41 cases. The remaining 286 are divided about equally into cases of alcohol-amblyopia alone, or when alcohol was the most potent factor, and cases subject to the mixed influence of alcohol and tobacco.

Although it has been stated that amblyopia is more apt to occur when spirituous liquors contain impurities, adulterating substances, for example, like empyreumatic oil, wormwood, etc., have not been proved to create disturbances of vision. Terson, however, has described one case of *absinthe-blindness,* over-indulgence in this beverage having been the cause of white atrophy of the optic disc. The patient himself, however, was an alcoholic subject.

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[4] Wien. med. Wochenschrift, 1898, 48, 1401-1407.

A curious attempt to bring *hyperopia into relation with toxic amblyopia* has been made by one or two authors. For example Parisotti[5] found among 200 cases of toxic amblyopia 175 hyperopes, and therefore thinks that the subject of hyperopic refraction is especially prone to this condition, and James Kerr,[6] who analyzed 50 cases of toxic amblyopia, calls attention to the fact that hyperopia is more common in these patients than other types of refraction, which he thinks is interesting, as hyperopes are more liable to glaucoma, optic neuritis and a congested appearance of the nervehead. It would seem, however, as De Gouvea remarks, that such an association can only be a coincidence, because hyperopia is naturally the dominant refraction among the classes who are most exposed to the abuses of alcohol and tobacco.

Acute alcohol amblyopia, ethyl-alcohol being the active agent, must be extremely rare, although occasionally cases have been referred to, and it is possible that such a condition was known as far back as Boerhaave's times. Recently Frank Van Fleet[7] has recorded a case of acute blindness from the action of ethyl-alcohol in all particulars resembling the same disease, presently to be described, which arises under the influence of methyl-alcohol.

According to Harold Gifford, the first case of *methyl-alcohol-amaurosis* which certainly may be classified as an *acute amblyopia* or loss of vision, was reported by Viger in 1877, and was again referred to by Mengin in 1879. The next case was probably observed in this country by Dr. J. M. Ray, who examined his patient in 1896 and described the case to a local medical society at the time, but did not report it in any journal. In the following year Dr. F. Van Fleet and a year later Drs. Mac Coy and Michael recorded their cases, and since this date a number of reports, both in this country and abroad, have appeared and the subject of methyl alcohol amaurosis has assumed great importance.

The pathway of entrance of the poison has usually been the stomach, that is, the methyl alcohol has been substituted for the

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5. Arch. d'Ophth., 1898, Vol. 18, page 531.

6. The Quarterly Medical Journal for Yorkshire and Adjoining Counties, Vol. IX, Pt. 3, 1901, p. 231.

7. New York Medical Record, January 18, 1902.

ordinary alcoholic drinks. Sometimes, however, the blindness has resulted from inhalation (Patillo and Casey Wood,[8] de Schweinitz,[9] Würdemann,[10] Schapringer,[11] Kipp[12] and J. F. Herbert,[13]) aided perhaps by absorption, in at least one instance, through the cutaneous surface (de Schweinitz).[14] That inhalation, however, is not necessarily followed by visual disturbance, as stomachic ingestion of the drug usually is, would seem to be indicated by the following interesting statement made by Swan M. Burnett:[15] "In certain large hat manufactories, where wood alcohol is much employed, the atmosphere of the rooms in which the workmen are engaged becomes so densely saturated with wood-alcohol that the air is drawn off and the wood-alcohol contained in it condensed and shipped back to the manufactory. Workmen living in this alcohol-saturated air, as well as those engaged in making the alcohol itself, are often affected with a kind of intoxication, but it is stated that so far no cases of blindness have been reported."

The amount of wood-alcohol necessary to cause blindness when it is ingested represents a varying quantity. Blindness and atrophy have followed the ingestion of 2 to 5 drachms (Raub), half an ounce (Swan M. Burnett), while recovery from a semi-comatose condition induced by drinking half a pint of this liquor without visual disturbance has been observed (Moulton). This difference in susceptibility is not peculiar to methyl-alcohol, but is seen with many other drugs.

Sometimes the methyl-alcohol has been taken by itself, or simply diluted with water; again it has been mixed with some other substance. For example, Van Fleet's patient, who was a periodical spreer, consumed large quantities of ordinary alcohol, dilute wood-alcohol and capsicum. Kuhnt's patient drank a mixture of methyl-alcohol and ordinary rye whiskey, while Viger's patient precipitated the gums in varnish with water and drank the supernatent liquid which contained the methyl alcohol. As shall presently appear a little more in detail, the cases of blindness due to drinking bay rum, Jamaica ginger and various essences, depend upon the methyl-alcohol with which they are mixed.

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[8] Ophthalmic Record, VIII, 1899, p. 599.

[9] Ibid, June, 1901.

[10] American Medicine, December, 1901.

[11] Archives of Ophthalmology, Vol. XXXI, 1902, p. 52.

[12] Ibid, p. 54.

[13] American Medicine, February 22, 1902.

[14] Loc. cit.

[15] Therapeutic Gazette, December 15, 1901.

In general terms, and very briefly summarized, the symptoms of this toxæmia are: Intense gastro-intestinal disturbance if the dose is not too large, followed, if it is greater, by severe headache, giddiness and coma; rapid failure of sight, which later may improve, but soon relapses; contracted visual fields and, if properly sought for, usually absolute central scotomata; and finally total or nearly total blindness. One interesting symptom, particularly pointed out by Hiram Woods, is the great variation in visual acuity, before the case settles down into progressive and permanent atrophy. Ophthalmoscopically there have been noted blurring of the edges of the optic disc, positive optic neuritis, and complete atrophy without signs of preceding inflammation. In many instances there has been diminution in the calibre of the vessels; in others, the retinal vessels have remained of normal size. An important symptom twice noted (Gifford, Kuhnt) is pain on movement of the eyes or on pressing them backward into the orbit.

The *diagnosis* is certainly not difficult, because, as both Hiram Woods and Edward Jackson have stated, there is no other form of blindness which gives clinical features exactly similar to those presented by cases of methyl-alcohol amaurosis.

The *prognosis* of methyl-alcohol poisoning is bad, not only *quoad visum* but *quoad vitam,* a number of cases having resulted in death. The blindness in more than 90 per cent of the reported cases has been practically complete. Now and then, however, recovery to normal vision, or practically normal vision, has been reported, for example, by Kuhnt, Schapringer, Herbert and Kipp, the amblyopia having been caused by inhalation of the fumes of alcohol in two cases and by ingestion in one.

In view of the fact that methyl-alcohol is much employed in the arts, either in the form of the alcohol itself, or in the form of Columbian spirits, which is a liquid containing about 95 per cent of methyl-alcohol, especially by painters, shellacers, workers in hat factories, etc., the recommendation of Gifford that this drug should be labeled "poison" is well taken. As Swan M. Burnett has forcibly said: "In our capacities as conservers of the public health, it seems to me our duty plainly points to the agitation of this question until our authorities are awakened to the necessity of protecting the community against the ravages of such a subtle foe. The people themselves should be informed through every possible channel of the highly dangerous nature of the drug when taken internally. It should be placed upon the list of poisons, and when sold labeled as such." Referring to the dangers of the inhalation of the drug, the writer has said: "Varnishers and other workers who use methyl-alcohol, or preparations containing it, are liable to a slow poison which may gradually accumulate and finally produce with great suddenness complete blindness, just as the drug does when it is consumed in large quantities in place of some other alcoholic drink. In other words, workers in methyl-alcohol are liable to dangers similar to those which surround the workers in lead, in India rubber when bisulphide of carbon is used, and in dinitrobenzol. The workmen should be warned of the dangers of the fumes of methyl-alcohol, and also the dangers of washing their hands, forearms, etc., in the same liquid."

In 1897 Dr. A. G. Thomson reported the first case of amaurosis in all particulars resembling the affection which has just been discussed, due to the drinking of excessive quantities of the *essence of Jamaica ginger*, and shortly afterwards the writer examined a similar case. About the same time, chiefly in the public prints, articles began to appear stating that blindness might arise from the excessive use of the *essence of peppermint*, cases of this character having been reported particularly in the northwest of the United States, where large quantities of the drug were consumed in the place of alcohol. So-called *Jamaica ginger-blindness* shortly afterwards, that is, December, 1898, was made the subject of a full report by Hiram Woods before the Baltimore Ophthalmological and Otological Society,[16] who report six cases. He attributed the blindness to a neuritis of toxic origin depending upon an alcoholic essence of Jamaica ginger, but was uncertain whether the toxic effect was direct or indirect, and while suggesting the possibility that alcohol or methyl-alcohol was the basis of it, did not think that this was proven. In one of his cases the preparation used was free from adulteration.

In November, 1900, Dr. Herbert Harlan[17] again took up the subject of blindness and death from drinking Jamaica ginger, peppermint, etc., and with the aid of analyses performed by an expert chemist demonstrated, entirely satisfactorily it would seem, that the active agent was not the ginger or the peppermint, but the methyl-alcohol with which it was adulterated. The alcohol used in the manufacture of these essences was composed of 75 per cent methylic- and 25 per cent ethylic-alcohol.

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[16] Ophthalmic Record, 8, 1899, p. 55.

[17] Ophthalmic Record, February, 1901.

The same deadly adulteration has been the cause of the blindness which has followed drinking *bay rum* (*spiritus myriciae*), as reported by Moulton,[18] and *cologne spirits,* as reported by Gifford,[19]

Naturally the prognosis is as unfavorable as in the pure methyl-alcohol cases, although prompt treatment now and then, as for example in Stieren's[20] case, is followed by complete recovery.

The *pathogenesis* of this somewhat remarkable form of amblyopia must naturally attract attention. The orbital pain, the complete blindness followed by marked but temporary improvement and the positive optic neuritis or congestion of the disc which several times has been observed, indicate a primary affection of the optic nerve, that is to say, a retrobulbar neuritis, a conclusion which is still further enhanced by the almost constant presence of the central scotomas.

In 1896, however, Rymowitsch[21] observed fatty degeneration of the ganglion cells, varicose hypertrophy of the nerve fibres, and oedema of the nuclear layers in rabbits poisoned with methyl-alcohol. Ward Holden[22] on the basis of experiments, concludes that methyl-alcohol causes an amblyopia which depends upon nutritive changes in the ganglion cells of the retina, and Birch-Hirschfeld[23] has confirmed this observation. He uniformly found degeneration of the ganglion cells with breaking down of the chromatic bodies, development of vacuoles, shrinking of the cell nucleus, and finally destruction of the cell body. Both Holden and Birch-Hirschfeld have also found changes in the optic nerve which they regard as secondary to the ganglion cell alterations. Indeed, Birch-Hirschfeld noted a marked analogy between these optic nerve lesions and the picture which the degenerated optic nerve in ordinary, that is, ethyl-alcohol amblyopia presents. Gifford, referring to Holden's single experiment demonstrating ganglion cell changes, suggests the possibility of post-mortem alterations, and thinks that the orbital pain observed in his case and that of Kuhnt, the positive neuritis seen by MacCoy and Michael, and the complete blindness followed by marked but mostly temporary improvement, indicate a primary affection of the optic nerve, though he is quite willing to admit that the ganglion cells may suffer at the same time. Birch-Hirschfeld takes exception to this criticism because he believes MacCoy and Michael's case is the only one in which optic neuritis was shown to be caused by methyl-alcohol. In this, however, he is mistaken, for congestion of the disc at least, and optic neuritis positively, have also been reported by Gifford, by Ray and by Hotz. Indeed, the last named author, referring to the fact that he has seen optic neuritis in this disease, points out that if the drug primarily affects and destroys the retinal elements, it is difficult to account for the return of sight which has been noted in a number of instances, while, on the other hand, a violent inflammation of the connective tissue of the optic nerve could primarily prevent the conduction of visual impressions, which could subside when the swelling of the nerve disappeared, but would again be blocked when the later atrophy developed. An explanation of the improvement of sight observed in the cases of methyl-alcohol amblyopia, usually temporary but in a few instances permanent, is given by Schapringer, who calls attention to the recent experimental researches carried out by Goldscheider and Flattau which tend to prove that degenerated ganglion cells may recover their healthy structure. Gifford returns to this question of pathogenesis in his most recent article on methyl-alcohol-amblyopia. He was able to study the fundus of his patient a few hours after blindness was complete, and there was not the slightest indication of haziness of the retina which should have been present had the nutrition of the ganglion layer been interfered with, and he thinks that the clinical symptoms, in man at least, speak rather for a primary lesion of the optic nerve, perhaps in combination with some disturbance of the retina.

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[18] Journal of the American Medical Association, November 30, 1901.

[19] Ophthalmic Record, July, 1901.

[20] Pennsylvania Medical Journal, September, 1900.

[21] Beitrage zur Pathologie der Amblyopia Alcoholica. Inaug. Diss., St. Petersburg.

[22] Archives of Ophthalmology, XXVIII, 2, 1899, p. 129.

[23] Archiv. f. Ophth. XLII, Heft. 2, 1901.

In summary it may be stated that there is not the slightest doubt that in animals methyl-alcohol, like quinine and several other toxic agents, acts primarily upon the ganglion cells of the retina, and that the optic nerve changes are secondary. Whether the same pathogenesis obtains in human beings is not positively proven, although it is likely. Perhaps, as Gifford suggests, there is a simultaneous action on the ganglion cells and the tissue of the optic nerve. Whether we may reason that the same process takes place in chronic alcoholic poisoning when it produces the well known symptoms of central scotoma, etc., is open to doubt, and Uhthoff is firmly convinced that there is a marked difference in the pathogenesis of the two conditions. To this point, together with Friedenwald's researches, we shall presently again refer.

The *clinical symptoms* of *ordinary intoxication amblyopia* of *chronic* type, whether they are produced by long-continued use of alcoholic beverages, or by tobacco, or by a mixture of these agents, have undergone no revision by recent investigations, and manifest themselves chiefly by the well known scotoma in the center of an intact peripheral field. It is true that *peripheral relative scotomas* and contraction of the field in addition to the central scotoma, have been reported by Von Salva, Demicheri, Borsch and others, but if they occur they must be exceedingly rare, and it is possible that there may have been some errors in the perimetric investigation, as Uhthoff suggests, or that the cases under consideration were not of a typical character.

Although it is commonly stated that toxic amblyopia of this tpye is uncommon before the 35th year, it would seem that more frequently than has been supposed, as Lautenbach and others have shown, youthful subjects may be affected. In Adler's list, before quoted, the youngest patient was 28 and the oldest 80.

Whether chewing tobacco to the exclusion of smoking will produce a typical toxic amblyopia is still uncertain, but it is difficult to obtain statistical information on this subject. Very occasionally the scotoma is produced by "dipping," and apparently also may arise in those who work in tobacco manufactories but do not use tobacco in any form, as, for example, Dowling and others have demonstrated.

The alleged immunity of Cubans and Spaniards from tobacco-amblyopia is disputed by C. E. Finlay[24]. He quotes many cases in his experience which establish his contention that such immunity does not exist.

Much attention has been paid recently to the *pathogenesis of chronic alcohol- and nicotine-amblyopia,* and the apparently well-established pathological lesions of axial degeneration of the optic nerve succeeding a neuritis in this region have been disputed.

In 1895 Nuel contended that the central toxic scotoma is not caused primarily by a neuritis of the macular bundle, but by a disease of the macula lutea causing degeneration of the ganglion cells, and that the optic nerve changes are secondary to destruction of the nerve cells of the macula. This contention is strongly disputed by Uhthoff, who still maintains the neuritic theory, that is, that the primary effect of the drug is on the papillo-macular bundle of the optic nerve, although he does not dispute that there may be a secondary change in the macula, and this position is also maintained by Siegrist.[25]

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[24] Archives of Ophthalmology, Vol. XXX, No. 3, 1901.

Uhthoff[26] summarizes his objections to Nuel's theory as follows:

1. The usually horizontally oval form of the scotoma which stretches farther towards the temporal side of the fixation point than towards the nasal side, and is consequently not symmetrical to the vertical line of separation, which it ought to be if there were a primary involvement of the macula lutea.

2. The paling of the temporal half of the optic papilla which develops at a period when the disturbance of vision is decidedly improving, for, as Sachs has said, an ascending atrophy could only be produced by a permanent, long-standing tissue change in the retinal center. To assume this, however, in the presence of rapid improvement is impossible.

3. The absence of ophthalmoscopic lesions in the macula, because the slight alterations which have been reported, yellow dots, trifling changes in the pigment epithelium, etc., are often seen in normal eyes of patients who have reached somewhat advanced years.

4. The uncertainty that Nuel's case, in which he found complete disappearance of the ganglion cells in the central portion of the retina with simple atrophy of the nerve fibers, was an intoxication-amblyopia, inasmuch as functional examination had been impossible. Moreover, this anatomical find does not militate against a primary partial interstital neuritis with secondary descending atrophy.

5. A primary affection of the macula lutea does not explain the regularity of the central scotoma and the partial involvement of the optic nerve any better than a primary affection of the nerve itself. Indeed, it is difficult to give a satisfactory explanation for this except to assume that those nerve fibres are chiefly affected which are functionally the most used and in which correspondingly active metabolic changes are to be assumed.

6. The results obtained by experimentation with certain acute poisonings in animals (methyl-alcohol, quinine, filix mas, etc.) cannot be applied directly to chronic alcohol and tobacco amblyopia, especially if, as in quinine and filix mas, there are very pronounced actions upon the vascular system.

7. The clinical disturbances in vision correspond best with the conception of chronic alcohol and tobacco amblyopia as a pri-

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[25] Archiv. f. Augenheilk., Vol. XII, p. 136.

[26] Graefe u. Saemisch, Handbuch der Gesammten Augenheilk., loc. cit.

mary, partial interstitial retrobulbar neuritis. The fact that the changes may disappear and the vision improve is scarcely compatible with the assumption of a simple atrophy.

Although Uhthoff believes firmly that the primary seat of the affection is in the retrobulbar portion of the optic nerve, he does not dispute that by virtue of long existence of the process the retina may also be involved, which can readily be understood in the light of our present views of the neuron doctrine.

An observation of Bernheimer's[27] in this respect is interesting. This author examined 20 cases of tobacco amblyopia in the first stage, that is before there were pronounced symptoms, and noted instead of pallor of the optic disc, that its outer half was slightly clouded and that the finer vessels were well marked and some of the larger vessels somewhat tortuous. In other words, there was a slight hyperaemia. According to him this ophthalmoscopic observation gives support to the primary inflammation theory.

At the time Uhthoff wrote anatomical investigations of quite fresh material from man, according to the latest methods of Nissl, Golgi, Marchi and others, were lacking. Since then Birch-Hirschfeld[28] has reported the results of the histological examination of the eyes in a case of chronic nicotine amblyopia which had been under observation in the Leipsic Eye Clinic for over seven years. He made use of the newer staining methods for neuroglia and for the ganglion cells of the retina, and found marked changes in each of the three forms of tissue in the optic nerve, that is to say, in the nerve fibres, connective tissue and glia. The variety and localization of the degenerated portion of the optic nerve were the same as have been described by Uhthoff and others, namely, a degeneration of the papillo-macular bundle. The thickening of the septa produced a picture differing essentially from that of simple gray atrophy, which he attributed to a purely physical contraction of a tissue which contains many elastic fibres and to an active proliferation of the connective tissue cells. The degeneration of the nerve in the affected area was not complete, which indicates the absence of pressure from a proliferating connective tissue. Moreover, the signs of a progressive interstitial inflammation were lacking. He thinks the increase in the number of cells of the interstitial tissue which have been described by others is probably to be attributed to an increase of the glia cells. The ganglion cells of the retina showed marked changes analogous to those seen in experimental methyl-alcohol poisoning. This degeneration was irregularly distributed over the central and peripheral portions in such a manner that normal and degenerated cells were found in close proximity. He believes that there is no ground for the assumption of a primary interstitial inflammation of the optic nerve, and his investigations point rather toward a primary involvement of the nervous elements of the nerve and retina as the result of the specific action of the poison, with an accompanying proliferation of the glia and moderate increase in the connective tissue. He believes also from analogy with other poisons and as a result of experimental investigations that the ganglion cell changes in the retina precede, or at least, come at the same time as the nerve fibre degeneration.

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[27] Klin. Monatsbl. f. Augenheilk., August, 1901.

[28] Archiv. f. Ophth., LIII, I, 1901.

J. Herbert Fisher[29] after pointing out that Professor Langley's experiments have proved that nerve impulses, whether motor to striped or unstriped muscle, secretory, vaso-motor or inhibitory, are arrested in an animal under nicotine, if, and only if, they have to traverse ganglion cells, extends these results to the specialized impulses which the optic nerves convey from their endorgans to the brain, and thinks we may infer that the impulses originated in the macular cones reach the brain only after transmission through ganglion cells, while those started in more peripheral parts of the retina pass without interruption along more direct nerve fibres. He argues that the central amblyopia in nicotine poisoning is due to an interruption in transmission of those impulses which have to pass through the ganglion cells upon which the alkaloid acts, and if this view is admitted, with our present knowledge of the histology of toxic amblyopia, it affords a satisfactory explanation why direct vision suffers out of all proportion to indirect vision in tobacco amblyopia.

J. Herbert Parsons[30] is unwilling to accept Mr. Fisher's theory. He states that anatomically there is no reason to suppose that the macular impulses pass through more cell stations than those from the peripheral parts of the retina. Such changes as have been demonstrated in various forms of the toxic amblyopias have not been limited to the macular region. There is evidence to show that chronic nicotine poisoning can produce a system-degeneration, and that this degeneration is in the sensory neurons of the first order, and would therefore correspond either to the bipolar cells or to the rod and cone cells, but in no case to the axones of the ganglion cells. Continuing, he points out that Ward Holden was the first to invoke the aid of vaso-motor constriction in the pathogenesis of toxic amblyopia, namely, quinine-amblyopia. Nicotine is an enormously more powerful drug in this respect than quinine, but there are many difficulties in the way of definitely accepting this explanation. It should only be regarded as a tentative working hypothesis to be put to the test of experiment. In this sense he considers that the action of nicotine, or rather, of the unknown cause of tobacco amblyopia, may be supposed to be twofold. First, vascular, causing vaso-motor constriction of the arterioles, which would explain the selection of the sparsely supplied macular region, and second, paralytic, upon the synapses either of the cone fibers or of the cone bipolars, or both.

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[29] Ophthalmic Review, June, 1901.

[30] The Ophthalmic Review, July, 1901.

Most of the investigations of the toxic agents on animals have been after an acute toxæmia has been induced. Friedenwald,[31] however, has produced chronic poisoning and found marked ganglion cell changes. It is certainly significant that ethyl- and methyl-alcohol produce these alterations in chronic poisoning as they do in acute, and although Friedenwald is unwilling to say whether these changes in the retina are primary or secondary to optic nerve lesions, he inclines to the former view. As he points out, in producing these retinal changes by chronic alcohol poisoning he has made an important advance in the solution of the same chronic poisoning in man. Popow and Modestow (quoted by Uhthoff) in animals poisoned with nicotine have found alterations in the retina, but Popow asserts that these changes are not characteristic of tobacco poisoning, as they may be produced by hunger, alcohol, uræmia, etc.

Since Holden, in 1898, demonstrated that *quinine blindness* depends upon degeneration of the ganglion cells which causes an ascending degeneration of the optic nerve and which he attributed to the ischæmia produced by the drug, his observations, in so far as the ganglion cell changes are concerned, have been abundantly confirmed, particularly by Birch-Hirschfeld and Drualt.[32] The latter observer has made some exceedingly interesting observations. He found that the visual disturbances are due to a degeneration of the optic nerve and the cells of the ganglion layer of the retina, and that no other part of the optic pathway presents decided alterations, but all parts of the ganglion layer are not equally attacked, certain parts being respected, particularly the middle of the central region. This fact can not be explained by a condition of the circulation; it indicates the direct toxic action of quinine on the ganglion cells. He admits, however, that vaso-motor constriction plays a feeble accessory role in the production of the degeneration. Some experiments of the writer not yet complete or published may indicate that quinine has a direct action on these ganglion cells. Ernst Nohl,[33] who reviews the literature of quinine amaurosis, recent and modern, agrees with those who assume, as most important in its pathogenesis, a direct toxic action of the drug on the multipolar ganglion cells of the retina, followed by an ascending degeneration in the optic pathway. Decided ischaema, however, in man, and the simultaneous development in typical cases of the retinal vessel-contraction and the amaurosis, give evidence of the dependence of the ocular action of quinine on circulatory disturbance. Quite recently Drualt[34] has reviewed and repeated his experiments, and concludes that the multipolar cells, especially of dogs, are very prone to the toxic action of quinine, the drug having a selective action on them, analagous, for example, to the selective action of curare on motor nerve plaques and of cocaine on peripheral sensitive nerves. De Bono's belief that quinine amblyopia is due to alterations in the percipient end-elements of the optic nerve has not been confirmed.

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[31] Journal of the American Medical Association, November 30, 1901.

[32] Recherches sur la Pathogenie de l'Amaurose Quinine, Paris, 1900.

The symptoms and ophthalmoscopic appearances in *quinine-amblyopia* are exceedingly uniform and are so familiar that they need not be detailed. A notable exception is an observation of Zanotti of the eyeground of a patient who tootk 12 grammes of quinine and developed the usual amblyopia with the ordinary appearances, to which were added numerous punctiform retinal hemorrhages like those seen in retinitis albuminurica. To the rare cases in which a scotoma is present in quinine amblyopia, Camac[35] has added a case, the scotoma having an annular form.

That large doses of *salicylate of sodium* can produce blindness has been known for many years, but the number of cases on record are few. An interesting recent one has been recorded by Simeon Snell.[36] His patient, a girl, nine years of age, took in about sixty hours, 140 to 160 grains of salicylate of sodium, and when examined was perfectly blind. Ophthalmoscopic examination was negative. The patient died shortly afterwards from endocarditis. Autopsy was forbidden.

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[33] Beitrage zur Augenheilkunde, 48 Hft. 1901, pp. 51, 99.

[34] Archives d'Ophthal, January, 1902, p. 19.

[35] Medical Record, October, 8, 1898.

[36] Trans. Ophth. Soc. U. K., Vol. XXI, 1901, p. 306.

Dr. Hobart A. Hare informs the writer that one of his correspondents has stated that in his region cases of blindness following the administration of *salicin* have been observed. Particulars in regard to these cases are not yet at hand.

Although it is well known that *santonin* may be responsible for toxic chromatopsia in the sense of yellow-seeing, a retrobulbar neuritis as the result of the ingestion of this drug must be uncommon. One such case has been reported by Inouye.[37]

In view of the frequent administration of the *preparations of thyroid gland,* the observation of Coppez reported to the Ophthalmological Society of Belgium, in November, 1900, of retrobulbar neuritis in patients who were taking this drug to relieve obesity is important. Central scotomata were present and the ophthalmoscopic picture was even more pronounced than it is in tobacco amblyopia. Venneman suggested, however, that the ocular condition might be due to the general depreciation of nutrition and not to a direct action of the drug.

Intoxication amblyopia caused by the ingestion of the fluid extract of *hydrastis canadensis* has been reported by Straub.[38]

That the various preparations of *aspidium* (*filix mas*), when taken in toxic doses, may, in conjunction with general symptoms, produce blindness, has been known for many years, and the grave prognosis of the toxæmia is evident in Sidler Huguenin's collection of 78 cases; 12 died and 33 suffered from permanent blindness. The amaurotic effect of the drug has been attributed to *filicic acid,* an active principle, and the effect of this medicament has been the subject of much comparatively recent experimental study.

Nuel[39] believes that he has experimentally proven that the loss of vision depends upon a parenchymatous retro-bulbar neuritis of great intensity. There is also destruction of the ganglion cells of the retina, and he thinks that it may not be impossible that there is a simultaneous action upon the nerve and the nervous elements of the retina. In Birch-Hirschfeld's experiments the chief changes were found in the inner nuclear layer and the layer of the ganglion cells of the retina, and he believes that the changes in the optic nerve are secondary.

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[37] Die Ophthal. Klinik, August 20, 1900.

[38] Wochenschr. f. Therapie u. Hygiene des Auges. 24, March 1, 1901, 191.

[39] XIII Congres International de Medecine, Paris, 1900. Rapport de la Section d'Ophtalmologie.

Some recent observations on the effects of the *fumes of dynamite* on eyesight are important and interesting. For example, L. D. Brose[40] has observed blindness in a man who was exposed to the fumes of exploded dynamite and blasting powder; unconsciousness also supervened. Ophthalmoscopic examination showed a pale optic disc, small arteries and distended veins. In one patient, at the last examination, temporal pallor of the disc was evident and vision was restricted to counting fingers. Another patient whose exposure to the noxious gases was less prolonged recovered with perfect vision. Dr. F. Vinsonhaler has communicated to the writer the account of a patient who became blind after exposure to the fumes of dynamite. Ophthalmoscopically the appearances were those of congestion of the disc. G. H. Hogg[41] observed amblyopia with congested discs and very dark color of the arteries and veins in a patient who had been much exposed to the fumes of gelignite, a blasting powder of which *nitro glycerine* is the chief constituent. These observations are interesting in connection with the amblyopias which depend upon *dinitrobenzol,* that have been so well reported by Simeon Snell in England.

R. P. White and John Hay[42] have experimented largely with the poisonous properties of naphthalene and the aromatic compounds, and point out that dinitrobenzene may be absorbed through the skin and that workmen handling these substances should avoid anything in the way of greasy applications and unnecessary exposure of the skin. They suggest that the numerous oxidizing ingredients associated with dinitrobenzene in the manufacture of high explosives may also have some influence on absorption.

Some observations of Dunbar Roy communicated to the writer seem to indicate that neuro-retinitis may be caused by exposure for long periods of time to air charged with *sulphurous acid gas;* the action of lead was not positively excluded.

The toxic influence of *illuminating gas* upon the eye has been investigated by Purtscher[43] and, comparatively speaking, the cases are few in number. The following ocular phenomena have been described: Exophthalmos, strabismus, paralysis of the external ocular muscles, paralysis of the ciliary muscle, myosis, mydriasis, depreciation of central vision, contraction of the retinal arteries and pallor of the temporal half of the nervehead. Purtscher himself reports a case of double lateral homonymous hemianopsia, and assumes a hemorrhage, perhaps an area of softening, in the visual radiations, even perhaps in the cortex itself, as the etiological factor. Friedenwald[44] has also observed hemiopia following poisoning by illuminating gas.

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[40] Archives of Ophthalmology, XXVIII, 1899, p. 402.

[41] Australian Medical Gazette, October 21, 1901.

[42] The Lancet, August 31, 1901.

[43] Centralbl. f. prakt. Augenheilk., August, 1900.

The poisonous effects of *bisulphide of carbon* and its deleterious effects on the vision of workers in that branch of the India rubber manufacture in which the rubber is vulcanized by immersion in a solution of chloride of sulphur in bisulphide of carbon, has been known for many years. So far as the writer knows, only two cases have been examined in this country, one by Dr. Henry Ring in New Haven, and another quite recently reported, the first, indeed, to appear in American literature, by Dr. F. C. Heath.[45] Birch-Hirschfeld's experiments with this drug on animals were negative so far as the retina is concerned, which justifies the opinion, according to Friedenwald, that the primary changes are not produced in the retina but elsewhere, in all probability in the optic nerve. It should be remembered, however, that Hirschberg has observed macular changes in this toxæmia.

From time to time new cases of *iodoform-amblyopia* are reported; for example, mild amblyopia without scotomas in phthisis patients by James W. Russell,[46] retrobulbar neuritis with permanent central scotoma following the treatment of extensive burns with iodoform by L. D. Brose,[47] and a temporary amblyopia after injection of 49 grammes of iodoform during a period of four months for the relief of a tuberculous spondilitis by W. M. De Vries.[48]

The literature of toxic amblyopia due to *lead* has been enriched by numerous publications in recent years, without, however, adding specially to our knowledge of the clinical manifestations of the visual disturbances under these circumstances. It is perhaps noteworthy, however, to mention that Batten[49] has observed hereditary optic nerve atrophy in three brothers, with lead as the exciting cause. The writer recently has examined a case of chronic lead poisoning with the typical ophthalmoscopic appearances of thrombosis of the central vein. The patient also had, as is not infrequently the case in lead patients, chronic nephritis.

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[44] Archives of Ophthalmology, XXIX, 1900, p. 204.

[45] Annals of Ophthalmology, January, 1902.

[46] The Lancet, 1897, I, p. 1608.

[47] Archives of Ophthalmology, XXIX, 1900, p. 289.

[48] Archiv. d'Ophtalmologie, January, 1901, p. 55.

[49] Ophthalmic Review, XIX, 1900, p. 151.

The visual disturbances depending upon lead-intoxication manifest themselves in various ways and without doubt, in addition to the optic nerve lesions which we see it also produces a deleterious effect upon the ganglion cells of the retina, exactly as it may produce vacuolation and destruction of these cells in the central nervous system. In connection with the assertion of Parisotti and other writers, that the nutrient arteries of the optic nerve and the vessels of the retina may suffer from a form of endovasculitis, which is termed endarteritis saturnina obliterans, under the influence of lead intoxication, D. J. McCarthy's[50] investigation of the cerebral lesions in experimental plumbic toxaemia are interesting. He found marked changes in the ganglion cells of the cortex, and even more striking changes in the cortical and subcortical capillaries, which were very markedly proliferated and their walls greatly thickened. These findings were present in a dog taking large amounts of acetate of lead over a period of two months, and dying as the result of the intoxication.

There seems no doubt that under certain circumstances excessive *tea drinking* can produce an amblyopia in all respects resembling that caused by tobacco, as, for example, has recently been reported by R. Wallace Henry.[51]

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[50] University of Penna. Medical Bulletin, January, 1902.

[51] Ophthalmic Review, XIX, 1900.

Bacteriology of Conjunctivitis.—From a study of the subject, Jameson concludes: "1. That the etiology is probably not primarily bacteriologic. 2. That acute and more often chronic hyperemia of the conjunctiva is probably the exciting cause. 3. That the condition resulting from this vesicular derangement is a change in the fluid constituent of the conjunctival sac by the outpouring of sanguineous exudate from its impaired vessels. 4. That this in turn gives to organisms already existant in the sac, principally the staphylococcus epidermis albus, a suitable nidus for rapid propagation. The normal equilibrium being immediately overthrown, diminished resistance, epithelial abrasion, altered secretion, and impaired irrigation antagonize and overpower the attributes the organ possesses of maintaining the sac in health."

REPORTS OF SOCIETIES.

SECTION ON OPHTHALMOLOGY.

COLLEGE OF PHYSICIANS OF PHILADELPHIA.

Meeting, February 18, 1902. Dr. Thos. H. Fenton, Acting Chairman, presiding.

Dr. Wm. Campbell Posey read a paper on *Transient Monocular Blindness*. After referring to the fact that, apart from the momentary blurring of vision from a tired ciliary muscle, or the partial blindness which accompanies migraine, or the periodic dimness of vision which is so frequent a precursor of glaucoma, transient loss of vision limited to one eye is quite uncommon, he reported five cases of this nature, in all of which the attacks of blindness had extended over a period of years, and were unassociated with any other symptoms, such as headache or nausea. In nearly all of the cases there was a history of rheumatism or gout, and evidences of arterial sclerosis. Hysteria could be excluded. None of the cases was seen during the attack, but in the interval the ophthalmoscopic examination was negative. The blindness varied in duration from a few minutes to an hour, the dimness of vision coming on rapidly and passing away more gradually. Loring, in 1874, was the first to make any extensive communication upon the subject of transient attacks of blindness, Nettleship, Priestley Smith, and Wagenmann subsequently presenting papers upon the same subject. He agreed with these writers that the probable cause of the blindness was a disturbance in the vascular supply of the eye, of the nature of a spasm, which was not maintained long enough to cause any permanent change in the tissues.

Though the attacks of blindness in all five of the cases were transient and seemed to have had no deleterious effects upon the eye, Dr. Posey believed that the prognosis should be guarded, as it was impossible to differentiate these from other cases in which partial or total blindness followed the attacks. He pointed out that transient attacks of blindness had long been known to be precursors of embolus and thrombosis of the central artery of the retina, but cited a case recently reported by Leber, in which all the ophthalmoscopic signs of thrombosis of the central artery of the retina were present, but where the microscope revealed no structural change in the vessel whatsoever, Leber attributing the blindness and the changes in the retina entirely to a spasm of the central artery of the retina.

To further illustrate this latter class of cases, Dr. Posey reported two of a similar nature, in both of which there had been attacks of blindness which were transient and had persisted over a period of many years without presenting ophthalmologic change. Finally, however, the vision was not regained after one of the attacks, and the blindness became permanent, the ophthalmoscope showing the complete picture of a total stoppage in the circulation of the eye. The blindness in both of these was probably due, as in Leber's case, to spasm, the formation of a thrombosis not being necessary to account for the gross structural changes that followed.

Discussion.—Dr. Randall remarked that the theory of spasm to account for the transient attacks of blindness was borne out in cases of toxic amblyopia. As an evidence that the ischemia may arise from a variety of causes, he recalled a case shown before the Section several years ago by Dr. C. H. Thomas, in which the taking of food, particularly cheese, at once robbed the man of his accommodative power. Dr. Zentmayer referred to the case of a man, 38 years of age, who for the past ten years has had attacks of transient monocular blindness occurring in his right eye. Visual acuity was reduced to light perception, this lasting from 3 to 10 minutes. His physical condition was good, and he has had but one attack of illness, articular rheumatism, some 20 years ago. He smokes but little, and uses liquor in extreme moderation. There is a family tendency to atheroma. No opportunity had presented of examining the eye during an attack, but at other times it appears normal. The phenomenon seems best explained by the supposition of a spasm of the vessel walls, or by functional paralysis induced by reduced blood pressure in conjunction with diseased vessels, as suggested by Haab. Dr. Fenton thought that sudden and complete binocular amblyopia was equally rare. He had recently had under observation a man of robust health and good habits who suddenly went blind without apparent cause, although the possibility of a patch of endocarditis existing was considered. He had failed to find a similar case reported. In answer to a question by Dr. Fenton as to the explanation of a transient attack of complete monocular blindness, Dr. Posey said that it was difficult to account for blindness unless as being part of a general syncope, as it did not seem likely that there would be a spasm in both ophthalmic arteries at the same time. He said that in one of his cases, where there had been a history of blindness in both eyes which had persisted for five minutes without any other symptoms of syncope, he was unable to assign a cause. There were also transient attacks of diplopia, and, as the balance of the extraocular muscles was practically normal, the double vision might be accounted for by a spasm of the vessel or vessels supplying some of the nuclei governing the movements of some of these muscles. He did not agree with Wagenmann that such severe measures as iridectomy, to reduce the intraocular pressure, should be resorted to ,but believed that careful treatment of existing rheumatic or gouty conditions was indicated, to combat any tendency toward endarteritis, and at the time of the attack the use of nitrite of amyl and gentle but active massage of the eye.

Dr. B. Alex. Randall exhibited a number of *Models for Teaching the Refraction and Movements of the Eye* which he had constructed several years ago, and which he had found it necessary to again use recently in class demonstration. He referred to the difficulties of presenting to students by diagrams the essential points in refraction, accommodation, and eye movements, even in problems involving but a single plane, while any attempt to demonstrate upon a plane surface the phenomena like astigmatism, where the third dimension is introduced, is to many more confusing than helpful. Variations of detail involving the changed position of lines is always difficult to indicate upon a diagram, because the lines drawn to indicate primary positions generally remain to confuse the diagram when we pass to secondary relations. In the models, however, where a set of rods are moved to the desired positions and automatically demonstrate the changed relations, such confusion is impossible and problems become of almost ridiculous simplicity. This is most manifest in the model demonstrating the mechanism of accommodation according to Helmholtz's theory, and in the more complex model giving the relations of convergence and accommodation. For a small class the actual employment of light rays from the lantern or sun thrown through a smoke-chamber, where every change is clearly apparent, constitutes an admirable method, but is hardly available for the large class-room, and the construction of the astigmatic eye out of a simple gas-light globe has more limitations for absolute demonstration, although perfect within that limited field, in which most of the apparatus otherwise employed leaves much to be desired or misunderstood.

Discussion.—Dr. Sweet showed a model for demonstrating the various forms of astigmatism in which the rays in the vertical and horizontal meridians were made of sheet metal, the retina being moved backward or forward to indicate the point of crossing of the rays in the different varieties of astigmatism. He also presented a rough model to represent the movements of the eyeballs and the positions of the true and false images in paralysis of the internal and external recti muscles. The separation of the false image as the true image moved toward the side to which the paralyzed muscle ordinarily rotated the eyeball was secured by the employment of geared wheels of different sizes.

Dr. G. E. de Schweinitz and Wm. M. Sweet presented a water-color sketch and macroscopic and microscopic preparations of an *Epibulbar Growth at the Corneoscleral Junction* occurring in a woman, aged 34 years. Clinically the growth appeared like a sarcoma, the microscope showing it to consist of polymorphous cells in a delicate reticulum which at times assumed a distinct alveolar arrangement. Many of the cells were distinctly epithelioid in type, and therefore the growth would be classed by some pathologists as an endothelioma. Its point of origin was apparently a conjunctival nevus.

Discussion.—Dr. Posey remarked that the rarity with which tumors in this situation involved the interior of the eyeball was well shown in this case, the growth having attained large size and spread by metastasis into the preauricular and cervical glands without the intraocular structures being affected. He referred to the corneal limbus as being the favorite seat for the development of neoplasms upon the exterior of the eyeball, on account of the arrangement of the epithelial cells in that location. He mentioned a case which he had recently seen of epithelioma of the lids, where the cornea became secondarily involved by the growth. The eye was glaucomatous and the corneal epithelium had been destroyed by ulceration. The corneal tissue in this case was densely infiltrated with the epithelial cells.

William M. Sweet, Clerk of Section.

CHICAGO OPHTHALMOLOGICAL AND OTOLOGICAL SOCIETY.

REPORT OF THE MEETING MARCH 11, 1902.

BY DR. BROWN PUSEY, SECRETARY.

President Dr. Wm. H. Wilder in the chair.

Dr. Oscar Dodd reported *a case in which a piece of nut-shell had penetrated the globe and remained for thirty years without causing trouble.*

The patient, aged 43 years, presented himself about a month ago with the following history. When a boy of 13 years of age he was cracking a nut on a blacksmith's anvil with a hammer, and something struck him in the right eye. He lived in the country and was treated by the family physician, no oculist being consulted. The eye was immediately blinded and very painful and so much inflamed for several months following the injury that he could not attend school. The inflammation finally subsided and the eye remained perfectly quiet with no pain or redness until about six weeks ago. It then became inflamed and very painful, with no known cause, unless it might have been a long ride in the cold. This condition had made the left eye so weak that it was difficult for him to use it.

The condition upon examination was as follows: The right eye was divergent and the ciliary vessels were markedly congested. The iris was discolored and retracted, especially at the lower temporal part. The pupil was small and nothing could be seen of the fundus. The perception and projection was good in most of the field. Tension was slightly increased and there was marked ciliary tenderness. The cornea was perfectly clear and no sign of any wound could be seen, although the foreign body must have passed through it. There was some photophobia and lachrymation of the left eye, and the retinal veins were congested by so much sympathetic irritation that the patient complains of being unable to see comfortably with the eye, and causes the patient to readily consent to the immediate enucleation of the blind eye.

On the following day the right eye was enucleated, and after hardening in formalin and freezing, was cut horizontally. As will be seen by the specimen, a mass of connective tissue is stretched from the iris, at the point where it was most retracted, back to the sclerotic behind the equator. Just beneath this is a piece of nut shell about 4 mm. long and 2 mm. wide, enveloped by the connective tissue. Over the optic disc is considerable connective tissue showing the remains of a severe optic neuritis. The lens is shrunken and partly calcareous.

The piece of nut shell must have pierced cornea, iris and border of lens, and after striking the back of the eye was enveloped in a blood clot which became organized.

The points of particular interest to Dr. Dodd were the fact that a piece of nut shell should be able to pierce the coats of the eye in this manner, and also that the eye should remain quiet for thirty years with the foreign body in it, and then become inflamed and painful without apparent cause.

Dr. Casey A. Wood said that he had his ideas as to the penetrability of missiles very much upset by an accident which occurred in a Fourth of July case, in which, through the explosion of a cannon firecracker, at a distance of thirty feet, the portion covered by a piece of pasteboard blew across the street, cut through the cornea, and buried itself in the lens. If he had not seen the case and had not made certain of its character and quality, he should have doubted the possibility of such a thing occurring.

Dr. Dodd said that the sympathetic irritation subsided immediately after the offending eye was enucleated.

Dr. Wm. E. Gamble reported a case of *"Hysterical Photophobia and Blepharospasm in a Child Three and a Half Years Old."* Dr. Gamble reminded the members of the society that this patient was shown before the society at the meeting in April, 1901. He reviewed the history as given at that time, as follows: Girl, 3¾ years old. At age of 1½ years had the measles; at 2 years of age had the German measles; no serious illness. The child had always been nervous and had had crying spells without cause. A gray-bearded man would frighten the child almost into convulsions. About one year before the child was chased by a woman across the yard; that night a doctor had to be called owing to her nervous state. There were no eye symptoms until about 17 weeks before, when the eyes and the nose began to water.

There was great photophobia and the eyelids were kept tightly closed. With the coming on of the eye symptoms the patient became more and more nervous. She was obstinate and was very restless. She had frequent crying spells and during such spells pulled her hair and pinched her cheeks. Her hands and feet were always cold; she perspired profusely. Dr. Gamble gave the later history of this case as follows: The symptoms as they existed at the time of the presentation of the patient continued until April 18, 1901.

During the night of April 18, she surreptitiously got hold of a one per cent solution of atropine, which she drank, thinking it was peppermint water. There was but little of the solution in the bottle, but as a result of what was taken there was a mild atropine poisoning—dilated pupils, incoherent speech, etc. The doctor who was called to look out for the poisoning found that the blepharospasm and photophobia had disappeared and these symptoms did not reappear until about 48 hours later. On April 29—ten days later—marked photophobia and blepharospasm was present. On the latter date the patient became ill with pneumonia and from time of the setting in of this disease the photophobia and blepharospasm disappeared. Since that time there has been no return of these symptoms.

Dr. Gamble said that this was primarily a case of hysterical photophobia. The closure of the lids did not seem to be so much a clonic spasm of the orbicularis palpebrarum as a mere volitional effort to protect the eyes from the light. The facial expression was quite similar to that seen in some cases of phlyctenular keratitis in which photophobia is especially manifest. He was not surprised that local treatment of this unusual local manifestation of hysteria proved a failure. The local treatment of these cases is, he thinks, for obvious reasons, very unsatisfactory. This disease more especially belongs to the neurologist, but the patients come to the oculist for treatment, and in many cases it is impossible to shirk the responsibility for caring for them. The unique experience of this little patient furnishes a suggestion as to the means or the manner by which they get relief. The explanation of the effect of the toxic dose of atropine on the patient would probably be expressed by the words "shock of the nervous system." This profound impression had a very good effect; very pronounced at first, but gradually becoming less and less. There is an opportunity here for the ingenious physician to formulate methods by which an impression upon the nervous system of these patients can be produced to such an extent as to bring about an amelioration or possibly relief of this symptom. Emetics here might prove useful and he intends using such remedies if opportunity presents itself again.

We can imperfectly explain the modus operandi of the cure of photophobia by an attack of pneumonia, yet we know that the reaction of the system that comes with convalescence is a strong force, and is probably the explanation of the cure in this case.

The moral perversion and mental vacancy that is produced by this condition, lasting for a number of months in early childhood, would cause harmful effects that might last throughout the life of the child, and the question arises whether it would not be better to infect it with measles, chickenpox, or some other comparatively harmless disease, with the hope that such infection would lead to the relief of this condition. The "pressure points" first described by von Graefe were sedulously looked for without result.

Dr. Gamble also reported *"A Case of Toxic Amblyopia with Argyll-Robertson Pupil."*

January 11, 1902, M. Mc., 43 years of age, presented himself on account of failure of sight which had been noticed to be growing worse for the last three months.

Personal history as follows: Has never had any illness except one attack of muscular rheumatism, which lasted a few days; no history of syphilis or other venereal diseases. The man is healthy; the muscles well developed; there are no signs of peripheral neuritis or other nervous malady. For several years he has been growing deaf in each ear. Range of hearing, R. 96 V. to Galton 1; L. 96 V. to Galton 1.

Schwaback: R. bone cond. 10″; air cond. 15″; L. bone cond. 15″; air cond. 5″.

Rinnie: R. plus 5″; L. minus 10″.

Bone conduction seems to be normal and high tones are heard. Both membranæ tympani are retracted and drums somewhat opaque. Complains of tinitus aurium. A diagnosis of otitus media nonsuppurativa was made.

For years before the first trouble with his eyes recorded below, he was a heavy drinker, taking ten to twelve whiskies daily and one to two cigars a day.

Family history good; no cases of blindness.

He has never had any disease of the eyes prior to the following record, which is taken from the record book at the Illinois Charitable Eye and Ear Infirmary, in Dr. Fisher's service:

April 4, 1895, R. V. $\frac{20}{100}$, L. V. $\frac{20}{100}$, diagnosis toxic amblyopia. July 23, 1895, R. V. $\frac{20}{40}$, L. V. $\frac{20}{70}$ plus. October 2, 1895, R. V. $\frac{20}{30}$, L. V. $\frac{20}{50}$. No field recorded. Treatment, hypodermic injections of strychnia three times a week for six months, and the use of alcohol and tobacco stopped. He abstained from the use of tobacco and alcohol until 1899, when he again began taking about the same amount as before, which he has kept up to the present time.

January 11, 1902, the date on which he came under Dr. Gamble's care, R. V. $= \frac{20}{10}$—. L. V. $\frac{20}{10}$—. Right pupil 2 to 3 mm. in diameter, left pupil 5 mm. in diameter. Left pupil has been larger than the right for twenty years; this is attributed by the patient to a blow on the left brow by a ball bat. A depression on the upper and outer margin of the bony orbit can be felt. Pupils do not respond to light, neither direct nor consentual, but do respond to accommodation. Pupils respond to irritation of the skin of the neck.

The right temporal half of each optic disk is quite pale; no other changes to be discovered in the eye. Has a small degree of hypermetropia.

February 2, 1902, R. V. and L. V. $\frac{20}{40}$. Could see the priest at the altar for the first time in several months.

March 6, 1902, R. V. $\frac{20}{30}$, L. V. $\frac{20}{30}$—. There is no history of gastritis. Is now able to read the newspaper.

The fields have been taken four different times. The light being poor at the time of taking the first three fields, the impression was given that there was central scotoma for red and green, extending about eight degrees from the center.

The treatment has consisted mainly in having the patient abstain absolutely from the use of alcohol and tobacco to the present time. Iodide of potassium was used internally for a few weeks, but now the patient is getting hypodermic injections of 30 grain nitrate of strychnia daily.

Dr. W. F. Coleman said that he had a case of what he considered toxic amblyopia at present, with a complication of colored spots in the macula, resembling somewhat albuminuric retinitis. However, there was no evidence in the patient's urine of nephritis, and it puzzled him as to whether it was really a complication of the toxic amblyopia. The field of vision was small; patient had not central colored scotoma, though he had considerable loss of color vision and color field, but this loss was concentric. The patient was improving under galvanism. Formerly he had injected strychnia to the extent of one quarter grain, but he had received practically very little benefit from this method over and above the probable benefit of the patient leaving off alcohol and tobacco. He recalled a report by Bull of fifteen cases of toxic amblyopia, which were said to have been very much benefited by hypodermic injections of strychnia. He also remembered that before the cases were published the house surgeon drew his (Bull's) attention to the fact that the druggist had made a mistake, and that he had injected aqua pura. The cases improved remarkably without the strychnia.

Dr. Casey A. Wood asked whether the urine was examined in this case, to which Dr. Gamble replied that it was, and there was no suspicion of diabetes.

Dr. Wood said the reason he asked the question was because we might have a central scotoma and all the appearances of toxic amblyopia in the early stages of so called diabetes mellitus. He referred to a series of cases published in Graefe's Archives, in which the author of the contribution observed the presence of the Argyll-Robertson phenomenon, yet he was uncertain whether that could be set down to the actual existence of a true tabes or not, but regarded it as a coincidence rather than as the direct result of the alcohol poisoning. He did not see any reason why Dr. Gamble's case should not be considered a genuine Argyll-Robertson pupil. In the first place, there was an injury on the side corresponding to the enlarged pupil which might be sufficient to account for the reflex iridoplegia, and there was no miosis on the other side, and he thought one rarely encountered a case of true Arygll-Robertson pupil due to the organic disease of the posterior columns of the cord without the presence of miosis. However, it did occur, but it was rare. The case of Dr. Gamble was very interesting, and he was glad to have seen it.

Dr. J. B. Loring said the questions that confronted the members were as to whether the Argyll-Robertson pupil was an accompaniment of the toxic amblyopia, or whether it might be a local symptom, or whether it might be the forerunner of some serious degenerative process that was going on. Gowers, in his lectures on "Syphilis of the Nervous System," reports twenty-two cases of Argyll-Robertson pupil in which there was no evidence whatever of any other degenerative process. In those twenty-two cases, 75 per cent of them presented a syphilitic history, and other evidences of syphilis. From them he drew the conclusion that the Argyll-Robertson pupil in itself was strong evidence of a degenerative process going on in the nervous system. Furthermore, it was evidence of the process being syphilitic. If we carry this reasoning still further and consider that the Argyll-Robertson pupil was one of the most constant and early symptoms in many cases of tabes, and that various observers regarded it as an initial symptom; then if we considered the fact that a large percentage of cases of tabes were those presenting a previous history or indications of syphilis, and those not presenting indications of syphilis exhibiting simply symptoms indicative of great exhaustion perhaps of the nervous system, post-febrile or otherwise, we have, in his opinion, further indications that the Argyll-Robertson pupil might be regarded in itself as evidence of a more serious disturbance of the nervous system.

Dr. Gamble, in closing the discussion, said he was quite sure the members of the society understood the position he had taken. While there was some uncertainty at first as to the case being one of toxic amblyopia, he felt personally well satisfied that it was such.

Dr. J. Elliott Colburn read a paper entitled *"Muscle-Tucking; A Report of Cases and Conclusions."* (See paper reported in full p. 192.

Discussion.—Dr. C. P. Pinckard could not see any reasonable explanation for muscle-tucking. It seemed to his that one was bound to get deformity from thickening of the tendon, and really nothing was to be gained over the ordinary advancement operations.

Dr. W. F. Coleman said he would like the essayist to say a little more about the amount of strabismus that occurred in his cases, as they all seemed to be cases of manifest strabismus, and how much effect was produced by the muscle-tucking? Again, the nature of the operation was such in quite a number of cases that one would expect a great amount of thickening if the tucking was carried forward to the sclero-corneal margin.

So far as the operation itself was concerned, he had published the details of two or three cases recently, and one within the last week, in which he had used Dodd's tendon-tucker. The case in point was one of divergent strabismus of forty degrees in an eye almost blind. The operation was done for cosmetic reasons, although, according to the statement of the woman, it relieved her symptoms, such as occipital headache, nausea, etc. He showed a pair of Dodd's forceps and said that he had attempted to do the tucking operation with them, and while it answered the purpose of tucking, the amount of shortening is limited to thirty degrees. He could not produce more than thirty degrees of shortening, although he wanted to get forty-five. He doubted if it was possible to get more than thirty degrees of deviation corrected with the tucking operation with these forceps. He resorted to the advancement operation by cutting the tendon off and shortening it, and advanced it with a tier suture at the vertical meridian of the cornea above, and one suture below, which brought the muscle forward to the corneal margin, leaving some fifteen degrees of excess, and the result after a week was excellent in balance, so that the use of this forceps for tucking purposes, he thought, was limited.

Dr. C. D. Wescott said that some ten or twelve years ago he performed this operation of tucking the tendon in one case, but the amount of the deformity was considerable. He could not obtain the great effect from the tucking that he had anticipated, so he had abandoned it altogether. He saw no reason why one should resort to such an operation, as the profession had a number of most excellent advancement and shortening operations which could be done in a few minutes with a single stitch, and with less deformity and less difficulty to the surgeon.

In regard to the effect that may be obtained from an advancement operation, it seemed to him that must depend in many cases of extreme divergence or convergence upon the amount of true tendon tissue that was present. In attempting to get an extreme effect in an advancement operation, one was limited by the anatomy of the muscle to a certain extent. When he did an advancement operation he always endeavored to secure an over effect. If he did not get this over effect from his advancement, he did, more or less, a tenotomy on the opposing muscle.

Dr. Colburn, in closing the discussion, said that his experience coincided very largely with what Dr. Wescott had said. Dr. Coleman spoke of the limited amount of effect to be obtained with the tucking forceps. He had never used it, but thought one could get as high a degree of effect from the tucking operation, if done without that instrument, as he desired, because he could bring the tendon, muscle and all, forward and stitch them down. Then would arise the question of the desirability of securing all the effect on a single eye in case of squint, which he thought it was unnecessary to discuss. An operation which could be done without deformity would be an exceedingly desirable one, because it would be sure of maintaining the tendon in good position. In many of the advancement operations he had done and had seen in the work of others, the tendon did not attach itself with perfect symmetry to all portions of its new attachment, and often resulted in disturbance of the up and down balance. The operation he had suggested of splitting the muscle down and drawing up the lateral wings in his hands had proven more satisfactory than the shortening operation where a portion of the tendon had been totally excised.

Dr. Nelson M. Black, of Milwaukee, Wis., reported a case of *"Subhyaloid Hemorrhage."*

The case is not so interesting as to the condition of the eye itself, but as to the cause. The age of the patient and the history of the predisposing factors in the case seem hardly sufficient to cause the condition seen, and he requested comments on the suggested etiologic factor in the case.

G. McA, age 18, February 18, 1902 came with diagnosis of "hemorrhage in eye." Five weeks before had been seen by Dr. Gamble at the Illinois Charitable Eye and Ear Infirmary; about the middle of January, after dancing for about ten or fifteen minutes, noticed that he had suddenly become blind in O. D., the vision was cut off quickly, as if a curtain had been pulled over his eye. Two days before this, while chipping iron from castings, a small piece of iron had struck his cornea and had been wiped off by fellow workmen; there was no trace of scar on cornea; the eye had been red for a couple of days following this accident. He had also been lifting heavy bedsteads before the injury. Vision O. D. = hand movement at periphery; O. S. = $\frac{6}{6}$.

Ophthalmoscopic examination showed large sub-hyaloid hemorrhage extending from midway between the disc and macula to as far on the other side of the macula and from the superior temporal artery to the inferior temporal artery and along the sup. temporal artery were five small spots of evidently organized clots, as they were darker and more distinctly outlined than the larger spot, or else they were in the retinal substance itself. The large spot was formed by the gravitation of extravasated blood. Visual field showed a large central scotoma. There was also a history elicited of gonorrhœa contracted ten days before the accident to the eye.

Treatment: Bed; pilocarpin sweats; hot compresses; saline cathartic and kali iodid. The gonorrhœa was treated by Dr. Witte. Excellent progress was made under treatment. When seen last, March 11, V. in O. D. being 3-36 eccentric and visual field showed no scotoma for form.

The question is, was the traumatism, exertion of lifting in his work and dancing combined sufficient to cause the hemorrhage?

Dr. Lewis suggests a small embolus in the sup. temp. artery of gonorrhœal origin from an endarteritis or endocarditis as the primary factor and the heavy lifting and exertion in dancing being the exciting cause. He cites two cases.

The heart was examined and nothing abnormal found and the urine showed itself normal; still the endocarditis or endarteritis, if such did exist, might not have been of sufficient severity to make itself manifest to the patient. It does not seem as if the history of the traumatism or heavy lifting done or the exertion in dancing was sufficient to cause such damage in the eye of a man of his age.

Dr. C. D. Wescott said the case narrated by Dr. Black recalled one which came under his observation recently. The patient was a young man, twenty years of age, who came to him in November, 1901, with a history of repeated hemorrhages into one eye, covering a period of three years, during which time he had been under the observation of three ophthalmologists in another city. At the time he examined him the vitreous of the left eye seemed to be occupied by a very large blood clot. In fact, there was absolutely no red reflex. There was practically no vision in the eye. A general examination of the patient revealed a valvular lesion and nephritis. The patient was sent to a general physician, who confirmed these latter findings and who put the patient on dietetic and alterative treatment—chiefly mecurial. He was examined again yesterday. When the patient was first seen, in November, the patient, as was said above, had no vision in the affected eye, but yesterday he read 6-6 slowly, the vision being interfered with by floating opacities which were still present. Ophthalmoscopic examination showed a very cloudy vitreous, with many large and small floating opacities. A vessel came from the opaque disc forward towards the lens, making the speaker think of a persistent hyaloid vessel, but it was quite possible, he thought, that this new vessel was the result of proliferating retinitis.

The interest of the case lay chiefly in the remarkable clearing-up of vision after a history of five or six hemorrhages, which had evidently occupied nearly the entire vitreous cavity and had extended over a period of three years. He thought there had evidently been a diffuse choroiditis in this case, and possibly a proliferating retinitis. The vitreous was so cloudy that he could not make an accurate estimation of the retina.

Dr. W. F. Coleman recalled the case of a very athletic young man who came under his observation three years ago. He had been sick in bed with influenza for three weeks before he saw him. He had had a severe attack of pneumonia; marked conjunctival injection, chemosis, with considerable pain, and it was a question whether he had a suppurative cellulitis or not. Dr. Coleman was called in consultation and suggested to the general practitioner, a man of very wide experience, that there was an abscess in the upper, inner posterior part of the orbit which was very deep. The general practitioner had previously made an incision into the orbit about an inch deep, up and in, without finding pus. The doctor was told that if he would cut deep enough he would get pus, and that if he had no objection he—Dr. Coleman—would run a knife into the bottom of the orbit. This he did, and quite a considerable amount of pus escaped. Recovery was very satisfactory.

Dr. H. B. Young, of Burlington, Iowa, referred to a case that had been in the hospital at Burlington. He saw the patient, a man, first on last Thursday. Eleven days before he developed tonsillitis on the right side. Three days after the tonsillitis had occurred the patient noticed that his right eye was swollen and that he had double vision. The next day the tonsillitis subsided from spontaneous rupture of the tonsillar abscess, and patient recovered from this. When patient presented himself on Thursday, he found decided exophthalmos of the right eye, with divergence. The conjunctiva was not chemosed; only slightly congested. Vision was 20-30 minus, 20-20 in the other eye, Ophthalmoscopic examination showed slight blurring of the disc and there is tenderness above the eye. When the eye was moved, patient complained of tenderness and pain. Manipulation about the orbit in the region of the frontal sinus developed very little sensitiveness, unless the eyeball was touched. Patient has had no headache or pain, except a little in the dirvergent eye occasionally. Pulse was 84; temperature 99.1°. He examined the nares, and found acute rhinitis, with considerable turgescence of the middle turbinal on the right side, but not markedly so on the left. He had given the patient the salicylates, at regular intervals for thirty-six hours, because he complained of pain in the shoulder on the same side. Patient was inclined to be sleepy or somnolent, although easily aroused. Following the administration of the salicylates, he had the bowels moved with a mercurial cathartic.

The question arose in his mind whether he had an extension of the tonsillar inflammation into the periosteum of the orbit, or a sinusitis. How could he account for the exophthalmos and divergence? He was inclined to doubt the existence of a sinusitis, because he could not understand how a man could have an acute inflammation of the sinus without pain, without headache, etc. Was there anything outside of keeping the man in bed (and he was now giving him iodide of potassium) he could do? This was the question which presented itself to him.

Dr. C. D. Wescott said the case mentioned by Dr. Young recalled one which he had observed in a medical student some years ago, as a complication of grip. The man had had an ordinary case of influenze, with catarrhal symptoms, mostly bone pains, sore throat, but no abscess of the tonsil. As he was apparently getting better from the influenza, it was noticed that his eye was becoming prominent, with ultimately the characteristic protrusion down and out. There was at no time excessive pain about the eye or the orbit. He put the man to bed, with very little treatment, with the exception of hot fomentations. The case went on to resolution without suppuration, and he regarded it as a simple cellulitis due to influenzal infection.

Such cases were described in text books as occurring with and without suppuration, as complications of influenza and other diseases. There was only moderate edema without that intense swelling overlapping the cornea which was sometimes seen.

Dr. C. P. Pinckard had seen several such cases, but never without chemosis. Two of them progressed to the formation of abscess, and were drained. Both of the cases were infected through the ethmoid. He thought the question of rhinitis was more important than tonsillar abscess as to the direct method of infection in the case of Dr. Young.

SAN FRANCISCO SOCIETY OF EYE, EAR, NOSE AND THROAT SURGEONS.

Meeting of February 20, 1902. The president, Dr. F. B. Eaton, in the chair.

Dr. Geo. T. Brady presented a *Case Illustrating the Limitations of the Giant Magnet.* Dr. Brady wished to show the value of the Makenzie-Davidson Localizer, as perfected by Dr. L. C. Deane, and its superiority as a diagnostic agent over the pain reaction of the Haab Giant Magnet. Seven months ago, while shoeing a horse, the patient's hammer missed the nail and struck the shoe so that a splinter from the hammer struck him in the left eye. Dr. Brady saw him four hours later, when there were no inflammatory symptoms. About the middle of the inferior temporal quadrant of the cornea, two millimetres from the limbus was a linear perforation and about two millimeters long, and immediately behind it a similar wound in the iris. Through the latter was seen the red fundus reflex and tie margin of the uninjured lens. The fundus was normal and the ophthalmoscope and oblique illumination failed to discover a foreign body.

The eye was then several times approached to the giant magnet with negative results. As there was no reliable X-ray apparatus available, Dr. Brady adopted palliative and antiphlogistic measures. Vision was 20-30 plus. A few days later there was mild irido-cyclitis. The iritic congestion was depleted by instilling two drops of adrenalin chloride, 1 to 10,000, every two hours. Vision was now 20-200ths.

Having seen eyes enucleated and the foreign body found after failure of the magnet, Dr. Brady kept the case under observation and for his own satisfaction and the patient's security had Dr. Deane skiagraph him with Miss Fleischmann's apparatus, and finally located a small foreign body, probably one-quarter the size of a pin head, just behind the ciliary region below the horizontal meridian.

The vision is now 20-50 plus, and the body being well tolerated, Dr. Brady intends to leave it *in situ*, and if inflammation supervenes, make a scleral incision near the equator and bring the tip of the magnet directly upon the spot.

Dr. Brady also showed a *Specimen to Illustrate the Limited Reliance We can Place upon the Haab Magnet Alone* as a diagnostic instrument. The eye had been injured four days before, and there was complete trumatic cataract. Vision was reduced to faulty projection, and a severe irido-cyclitis was well under way. There was a very faint metallic glimmer on the pupillary margin down and out. A small iridectomy done at this spot was rewarded by finding a particle of steel weighing 1-10 of a milligram in the excised portion. The eye had been exposed to the magnet with little or no pain. A month later the eye had to be removed, when a large particle of steel was found imbedded in the inflammatory exudate just behind the equator.

In Dr. Brady's opinion it is wiser to delay interference with the magnet until a reliable skiagram can be obtained. From experiments with pigs' eyes it has been concluded that the foreign body is drawn out by the magnet along the same path by which it entered. These eyes are invariably preserved in formalin with resulting hardening of the lens capsule and its cortical layers, and Dr. Brady thought the reason that the foreign body in the vitreous passes around rather than through the lens is due to the preservative employed, which increases the inherent resistance of the lens.

Mr. W. A. Martin presented a case of *Perforation of the Lens.* He remarked that the case had been shown to the society two months before. The injury occurred four months ago, and when first shown to the society the eye was in an acute state of inflammation. A pyramidal cataract was then seen extending from the posterior capsule to the point of entrance of the pencil in the anterior capsule. Dr. Martin had then termed it a traumatic cataract, but in reality it was only a pseudo cataract. The lens fibers were certainly not involved or there would have been a total absorption. The spaces between the capsular opacities are almost as clear as the rest of the lens. On looking closely, a line is seen running through the lens from one capsule to the other.

Dr. Martin also presented a case of *Infiltration of the Cornea.* The patient, a man, had come to the clinic four weeks ago with a history of having had chickenpox several weeks before, and two weeks before he had applied for treatment he had had some disturbance of vision with much pain and photophobia. Dr. Martin thought at first that he had a corneal ulcer to deal with and had intended to use the cautery on it. The condition has not changed in four weeks. There are now large blood vessels running up to the infiltration at its lower margin. The only complaint now is sensitiveness to light.

Discussion.—Dr. Fredrick had had a case similar to Dr. Martin's, but much more extensive. It was that of a girl about 4 or 4½ years old, who came with an enormous ulcer occupying the lower half of the left cornea. There was intense photophobia, lachrymation, and thickening of the lid. Dr. Fredrick did the Sæmisch operation, making an incision across almost the whole cornea, and when the lips were agape was able to remove with iris forceps a large mass of coagulated fibrin and pus from between the layers of the cornea. The wound healed kindly and today the eye is well with the exception of a large opacity, and it is now six or seven weeks since the operation was done. The fact which Dr. Fredrick desired to lay especial stress upon was that there was no entanglement of the iris, and believed that the reason why the Sæmisch operation has fallen somewhat into disrepute is because it was found to so often lead to entanglement of the iris. In this case the contents of the pus cavity could be lifted out from between the layers of the cornea. Dr. Fredrick's reason for doing the operation was because he feared the surface would break very soon and the eye be lost altogether. There was no hypopion, or, if there was, could not be seen because the infiltration was so dense and occupied the whole lower half of the cornea.

Dr. Cohn thought Dr. Martin's case a very puzzling and interesting one. What Dr. Fredrick had just described was a corneal abscess, a purulent infiltration of the corneal parenchyma. Dr. Cohn quite agreed with him that in that case the Sæmisch operation is often indicated. Recently he had operated on a case similar to Dr. Fredrick's, and with equally good result. He thought Dr. Martin's case a very different one, but was not prepared to state what it is. At all events, it is a superficial infiltration and not a deep-seated suppuration, and the Sæmisch operation therefore out of the question.

Dr. Fredrick thought Dr. Martin's case too dense to be a collection of pus or an infiltration. It seems purely fibrinous matter.

Dr. Martin (closing) said that he had been about to say just what Dr. Cohn had stated, in reply to Dr. Fredrick. He thought himself that the case is certainly not one of pus infiltration; that this is shown by the history. A condition remaining for four weeks without any change, any enlargement or breaking down, and without any irregularity of the surface, certainly could not be attributed to an infiltration of pus. For that reason he thought it simply an exudate on, or beneath, Bowman's membrane, and similar to the case Dr. Eaton had presented some time ago, where methylene blue and protargol made a precipitate that lay between the epithelium and that membrane. The only thing visible that would cause the infiltration is that on the lower margin there is a linear abrasion.

Dr. G. W. Merritt presented a case of *proptosis*. The patient had come to Dr. Merritt that afternoon with a history that every time he leaned forward his eye protruded. Dr. Merritt had him lean forward for a considerable time, and the eye did protrude, seemingly a quarter or half an inch. Immediately after assuming the erect posture divergence of the eyes existed for some five minutes. Examination of the eye and both orbits showed them to be alike, except that the protruding eye was a little congested. Vision in both eyes is 20-20. Patient could also read the finest print. He had stated that when any one pressed his neck it was very sensitive. Tonight, after being examined here, he went outside and was quite pale, and said he could not stand pressure around the neck. Dr. Merritt thought there must be some connection between the thyroid and the exophthalmos, but still that should affect both eyes. He thought there might be a plexus of veins behind the eye, which, becoming congested, forced the eye forward.

Discussion.—Dr. L. C. Deane said that Dr. Merritt's case reminded him of a case of angioma connected with the orbit which he had seen some eight years ago in Dr. Knapp's clinic in New York. When erect, no tumor was noticeable. When the man stooped over the tumor enlarged to about the size of a walnut, and seemed to be connected with the circulation of the orbital cavity. Possibly it was quite similar to Dr. Merritt's case in that there may be an angioma posterior to the globe. Dr. Knapp's case was operated upon and Dr. Deane recalled that there was a great deal of hemorrhage, but not what the final result was.

Dr. Martin thought it possible that bending the neck over might cause pressure on the cervical ganglia and thus cause this reflex trouble back of the eye.

Dr. Deane asked whether there was any pulsation when the patient stooped forward.

Dr. Merritt had not had an opportunity to determine this.

Dr. Deane thought that an ophthalmoscopic examination while the patient inclined forward, to determine the condition of the blood vessels of the fundus, the acuity of vision during the protrusion, the field of vision and the tension, would bring out some important facts. The rotation of the globes before and during the protrusion should also be determined.

Dr. Merritt stated that he had taken the tension and that it was normal just after but not during the protrusion. When the man raised his head there was a marked divergence of one eye, which soon returned to its normal condition. There was double vision.

Dr. Deane imagined that the divergence upon assuming the erect position was due to the pressure upon the posterior portion of the —out— which was outward upon the nerve.

Dr. M. W. Fredrick presented a case of *Double Keratoconus* which he had operated upon on the right eye three years ago and shown at that time to the society. He showed the patient now because the left is about ready to be operated upon. The operation on the right cornea was done by applying a small, flat electrode, heated to cherry red color, to the apex of the conus until it had reached Descemet's membrane, and then drawing it slowly to the lower, outer part of limbus. Vision before the operation was fingers at four feet, and is now 6-60 with ability to read large type. In connection with this case, Dr. Fredrick demonstrated the water spectacles of Lohenstein for conical cornea, and which he had tried on his patient. It improved vision from 6-60 to 6-12, but the patient refused to wear it, prefering the diminished vision to the discomfort of the apparatus. Dr. Fredrick chose the cautery in preference to ablation of the apex of the conus, or trephining, because he thought the result in this case would be better, and it seems that the result justified him. The cornea now has the appearance of keratoglobus. The Javal ophthalmometer shows in the operated eye 8 or 9 dioptres of irregular astigmatism which no lens will correct, but the vision is improving.

Discussion.—Dr. R. D. Cohn was glad Dr. Fredrick had shown the Lohnstein apparatus, which the inventor had devised for himself, being afilicted with keratoconus. With it he could read with a good degree of comfort for several hours and then would lay it aside to rest his eyes. With most people it is so uncomfortable that they refuse to wear it.

Dr. Deane asked how long Dr. Fredrick's patient wore the apparatus and whether it had any macerating effect on the anterior epithelium of the cornea, and what the sensations were after it had been worn a long time.

Dr. Fredrick said he did not believe there was any macerating effect on the cornea, but that if the device were tied on tight enough to prevent dripping of the water, it might cause headache. The main thing is to correctly adjust the apparatus.

The President said he had had some experience with cases of keratoconus. He had tried the conical lenses of de Wecker but had found them unsatisfactory. The best results he had seen had been from the use of stenopaic slits in spectacle frames.

Dr. L. C. Deane reported three more cases of *Localization of Foreign Bodies in and about the Globe,* and projections and photographs illustrating them. The first case was that just ably presented by Dr. Brady.

The next case was referred by Dr. Pischel for localization. The patient is a miner and some six years ago was struck with a chip of steel which, although he was unaware of it, entered the globe. A year later a cataract developed and was removed by a surgeon who was unaware of the presence of the foreign body. Some reaction followed the operation with no improvement of vision. Patient consulted Dr. Pischel later, who found the eye hard and painful with incarceration of iris in the old corneal wound. He placed the man before the Haab magnet. The pain reaction was marked and some attractive force exerted upon the eye, which conclusively showed the presence of steel or iron. The photographs and projections show its location exactly. It was removed by the magnet through a scleral wound made according to the position indicated.

The third case is one of a little boy who was shot in the eye by a shot-gun at a distance of 45 feet, the shot penetrating the right side of the head and two shot entering the eyeball. This was six weeks ago. The little fellow was confined to his bed with a severe orbital cellulitis and fever, and the eye was in an advanced stage of uveitis. The background could not be seen; in fact, the eye was destroyed. It was necessary to determine whether the shot were in the eyeball or orbit, and in what part, so as to determine the cause of his orbital cellulitis. The two photographs demonstrate the case. Two shot were found to have passed through the globe. One was lodged 4 mm. posterior to the globe and resting upon the optic nerve. The other was found to have entered the superior portion of the globe, passed through it, and lodged itself in the orbital cavity superior to the eyeball and on about a vertical line drawn through the posterior pole. The projections show this more accurately.

The fourth case was referred to Dr. Deane by Dr. Payne to locate a piece of steel imbedded somewhere in the eye or orbit. The young man, some four weeks ago, was hammering a pipe above his head, when he felt a sharp shock in his eye and was dazed for a little while. He suffered with photophobia for three or four days, then took off the bandage and saw as usual. Later a cataract developed. He was placed before a Haab giant magnet and no pain reaction was felt; so it was concluded that no steel was present.

The case was referred to Dr. Deane, who localized a piece of steel in the eye, 2mm. by 1mm. in size, resting upon the floor of the eye 3mm. posterior to the equator. The eye was placed before the Haab magnet and an incision was made exactly at the spot indicated in the diagram.

The giant magnet was entered and the piece of steel extracted exactly where it was localized. Dr. Deane thought that this last case with the second one presented, proved conclusively the character of this method and its value when the application of the Haab giant magnet and all other measures had failed to extract the foreign bodies.

Eye Defects in Children.—The eye defects which may cause apparent mental dullness and deficiency in children are reviewed by Bull, who gives them in the order of their frequency. The first is hypermetropia, which makes the patient incapable of sustained accommodative effort for near objects for any length of time, producing pain, headache and incapacity of the child for ordinary close work. The next most frequent is astigmatism, which is often the cause of the unjust charge of dullness. This may lead in neurotic children to various apparently irrelevant reflexes and even epileptiform attacks. The third refractive error and the most distressing one is myopia. The mental evolution of the child suffering from recognized or defective myopia is instructive—unable to see what his companions see and jeered at for his failure, he becomes introspective and perhaps perverted in his tastes. Muscular anomalies may also give rise to some difficulties. The effects of squint are also usually associated with some refractive error. Other special defects, which rarely occur, such as congenital cataract, lens dislocation, lack of pigment, coloboma and aniridia, are mentioned; in conclusion he calls attention to an important and altogether interesting defect which has nothing to do with the eye as an organ of vision, but rather with the visual centers in the brain, viz.: congenital word-blindness, of which cases have been reported by Hinshelwood and Nettleship. In these, changes have been found in the left supra-marginal convolution and angular gyrus. It should not follow because this has been little noticed heretofore that it is necessarily rare. It may be moderately frequent. Its importance from an educational standpoint is obvious. If the case is curable the remedy will probably be found in methodical instruction in reading begun at an early age as possible. If it is irremediable the sooner this is ascertained the better.

NEWS ITEMS.

PERSONALS AND ITEMS OF INTEREST SHOULD BE SENT TO
DR. FRANK ALLPORT, 92 STATE ST., CHICAGO.

Ophthalmic Myology, by G. C. Savage, M. D., Nashville, Tenn. A systematic treatise on the ocular muscles. It contains 567 pages and is illustrated by sixty-one cuts and six plates. Price $4.00 per copy. By sending to The Ophthalmic Record your order will be filled at once.

Dr. A. R. Baker, of Cleveland, Ohio, has moved to the New England Building, Euclid avenue.

Dr. Henry W. Ring has recently been appointed ophthalmologist to the New Haven Hospital, New Haven, Conn.

Dr. F. W. Harvey, of Montreal, has been appointed clinical assistant in ophthalmology at the Royal Victoria Hospital.

Dr. G. A. Stevenson, of Albert Lee, Minn., announces that he has given up general practice to devote his entire time to eye, ear, nose and throat work.

Fifty Thousand Dollar Eye Suit Decided.—Dr. Frank S. Wagenhals, Columbus, who was sued for $50,000 by a convict whose mutilated eye he removed in order to save the other eye, has been vindicated by the court, which found in his favor.

New Home for the Ophthalmic Institute.—The New York Ophthalmic and Aural Institute, under the charge of Dr. Herman Knapp, is to move from its old quarters in East Twelfth street to a new office on Central Park West and 64th street.

Dr. Knapp a Septuagenarian.—Dr. Herman Knapp celebrated his 70th birthday March 17, and in 1904 will celebrate his fiftieth anniversary as a medical practitioner. He was professor of ophthalmology at Heidelberg from 1864 to 1868. Since 1868 he has practiced his profession in New York City.

Wills' Eye Hospital, under the care of the Board of Directors of City Trusts, is said in the annual report of the president of the board to be in immediate need of money. He states that the hospital equipment is antiquated, its building dingy, and the new buildings unfinished. The income from the Wills' estate is not sufficient for running expenses.

Injury to the Eye.—The Appellate Court of Indiana holds, in Van Camp Hardware & Iron Co., vs. O'Brien, that where a girl not quite 9 years old had her left eye injured by another's negligence, the eyeball being cut open, causing her to suffer pain and lose the sight of her eye, an award of $2,500 damages could not be considered so excessive as to warrant a judgment therefor being disturbed.

A new medical society was instituted March 18 at the Hotel Cadillac, Detroit, whose purposes are to promote the interests of science and good fellowship among its members. It bears as its name the Detroit Ophthalmological and Otological Club. It is proposed to limit the membership to members of the State Medical Society and any of the recognized local societies. Meetings will be held the first Tuesday of each month. The chairman each night will name the chairman for the ensuing meeting. Dr. Walter R. Parker has been elected secretary. The charter members of the society are: Drs. Eugene Smith, Leartus Connor, Don M. Campbell, L. E. Maire, A. Thuner, R. W. Gillman, George E. Frothingham, G. L. Renaud and Walter R. Parker.

A new book has been published by Dr. G. C. Savage, of Nashville, Tenn., entitled "Ophthalmic Myology," and purporting to be a systematic treatise on the ocular muscles. It is published by the author and printed by the Gospel Advocate Publishing Co., of Nashville, Tenn. It contains sixty-one illustrated cuts and six plates. It contains about six hundred pages and is well indexed and printed. It is honest and instructive from cover to cover, and those who desire to understand the physiology and pathology of the ocular muscles will find more to interest them in this book than in any that has yet been published. Dr. Savage's well known views upon the subject of improper balance of the ocular muscles thoroughly permeates the character of the book, and while all men do not agree with Dr. Savage in his views, for, of course, honest men may disagree honestly, no one can but respect the honesty of Dr. Savage's views and character and the conscientiousness with which the work is done. The book thoroughly mirrors Dr. Savage's personal and professional characteristics; that is, it is honest, thorough, careful, instructive, interesting and conscientious. We heartily recommend the book to all.

The Committee on Pathologic Exhibit for the American Medical Association is anxious to secure materials for the coming session at Saratoga, June 10 to 13, inclusive.

This exhibit was accorded much praise and comment during the sessions at Atlantic City and St. Paul, respectively, where were collected valuable exhibits from all parts of the country. The materials included not only pathologic specimens but the allied fields, bacteriology, hæmatology, physiology and biology were well represented.

It would also be desirable to secure exhibits of new apparatus, charts, etc., used by teachers of pathology and physiology in medical colleges.

This exhibit has already become a permanent feature of the annual sessions of the American Medical Association and the committee is desirous of securing its list of exhibits as early as possible and to this end asks those having desirable materials to communicate with any member of the committee.

To contribute to the value of the work, it is suggested that as far as possible each contributor select materials illustrative of one classification and by such specialization enhance the usefulness of the display.

Those lending their materials may feel assured that good care will be given their exhibits while in the hands of the committee and due credit will be given in the published reports. Very respectfully,

F. M. Jeffries, 214 E. 34th St., New York City.
W. A. Evans, 103 State St., Suite 1403, Chicago, Ill.
Roger G. Perkins, West. Res. Med. School, Cleveland, O.
Committee on Pathologic Exhibit, American Medical Association.

Charles Broadway Rouss died recently at his home, 632 Fifth avenue. Death is attributed to pneumonia. His name was originally plain Charles Rouss. The name Broadway he added because in the principal thoroughfare of New York he had won fortune. He was born in Woodburg, Md., in 1836. As a school boy he sold notions in the streets in Winchester, and when fifteen became clerk in a store at a salary of $1 a week. In three years he had accumulated a capital of $500, with which he went into business, and at 25 he was the wealthiest merchant in Winchester, having $60,000 in the bank. He joined the confederate army at the outbreak of the war, and at its close he was practically penniless, having given all his money in aid of the Southern cause. He came to this city, obtained employment as a clerk, saved his money, and eventually began business supplying bargain counters, traveling merchants, 5 and 10 cent stores and such establishments.

It is estimated that Mr. Rouss had accumulated a fortune of $10,000,000. He gave $100,000 with which to erect in Richmond, Va., a memorial chapel to dead confederates and $30,000 to found an art scholarship for the University of Virginia. He gave Winchester a waterworks at a cost of $30,000 and a town hall. To the city of New York he gave the Washington and Lafayette statue and in Mount Hope Cemetery he erected a monument to the memory of confederate veterans.

Ten years ago the eyesight of Mr. Rouss began to fail and for the last six years he had been blind. He offered $1,000,000 to any man who would restore his sight. He submitted to several experiments and finally hired a substitute, who was similarly afflicted and who underwent many ordeals. Nothing was found, however, which was of any avail.

Prognosis of Operation for Glaucoma.—Mendel reports from Hirschberg's ophthalmic clinic that during the last seven years 234 patients have been treated for glaucoma and 258 eyes operated on. Of this number 83 were men, 144 women and 7 children. No operation was performed in 15 cases. The best results were attained by iridectomy in acute inflammatory glaucoma: 82.2 per cent comparatively or completely cured, and 77.1 per cent in chronic inflammatory glaucoma. It also improved or at least prevented further injury to the sight in the cases of simple hypertension. The results confirm on the whole those obtained in the previous 569 operations for glaucoma. Iridectomy has maintained its supremacy during the twenty-five years' experience in the clinic, but not to the complete exclusion of other operations. The second eye was never operated on until the first had recovered completely from the intervention. Enucleation was required in 31 cases during the last seven years on account of pain. Haab has recently published similar statistics showing 77 per cent comparative or complete cures in acute inflammatory glaucoma, and 71 per cent in simple glaucoma, with 40 per cent under treatment with myotics.

THE
OPHTHALMIC RECORD
A MONTHLY REVIEW OF THE PROGRESS
OF OPHTHALMOLOGY.

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ORIGINAL ARTICLES.

A COMPILATION OF THIRTY-TWO CASES OF GLAUCOMA REPORTED TO THE NEW ENGLAND OPHTHALMOLOGICAL SOCIETY SINCE ITS FOUNDATION.*

THE DANGER OF MYDRIASIS.

BY MYLES STANDISH, M. D.
Ophthalmic Surgeon, Massachusetts Charitable Eye and Ear Infirmary, Boston.

The New England Ophthalmological Society, a limited society of fifty members, which has been in active existence for eighteen years, has never issued any volumes of transactions, or permitted any report of its proceedings to be printed in medical publications, although very careful abstracts of the cases reported have always been entered on its records.

Some months since, happening to be particularly interested in the subject of this paper I thought it would be instructive to review all the cases of glaucoma which have been presented to the society since its foundation. Of course, it is not to be supposed that all the cases of glaucoma seen by the members have been reported, but it is fair to assume that such cases as have been particularly instructive are likely to have been reported.

As I have not asked the permission of the gentlemen to use this material, and as possibly some of them may have changed their opinions on this subject since reporting these cases, I shall abstract the cases without giving the names of the gentlemen who reported them.

The first case reported to the society was at the January meeting, 1885, when Dr. A. reported a case he had first seen on October 18th, preceding. The patient was a woman 68 years of age with V. O. D. = 4-60 and V. O. S. = 4-36 without glass. With glass + 1.5 V. 4-18 T. = + 1. Pupil and fundus were normal—some opacities in the lens of the right eye. For the purposes of examination, he used a solution of sulphate of atropine—1-1000. On October 21st he was sent for to see the patient. Twelve hours after the use of the atropine there had been severe pain in the right eye, which lasted 36 hours with nausea. V. was lost on the 19th.

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*Read at the meeting of the New England Ophthalmological Society, December, 1901.

When seen the patient had quantitative V. with dilated pupil, shallow anterior chamber, T. increased and no pain. Eserine was instilled into both eyes, and on the 24th V. O. S with + 1-50 = 4-24. Counted fingers with the right eye. T. + 1 in both eyes, small pupil and shallow anterior chamber.

Dr. B. said he had a case of glaucoma which followed the use of atropine.

Dr. C. reported a case of a patient who had experienced an attack of acute glaucoma in which iridectomy was done without improvement of V. The patient had subsequently used eserine from time to time in the eye, and afterward returned with slight haziness of the lens in both eyes. T. absolutely normal. Atropine was instilled, 1-500, and was followed in two hours by great pain, and the next morning T. = + 2 with acute glaucoma. Eserine was used, and in two hours the pain was gone and V. eventually returned to where it had been before the glaucomatous attack, although it was absolutely lost at the height of the condition.

Dr. E. said he was skeptical as to the effect of atropine in these cases and thought the mental excitement of the examination might have superinduced the glaucomatous condition. He had seen a case of glaucoma checked by the use of atropine, which gave relief to the pain and congestion. The case had a few posterior synechiae, but there was the typical depression of the nerve, pulsating arteries and increase of T.

At the February meeting, 1885, Dr. E. reported the case of a physician, 66 years of age, who first presented himself December 5th, 1883, because he had discovered six weeks before that he could only see form with the right eye. For some time both eyes had tired easily, but there had been no pain or redness. The right anterior chamber was not more shallow than is often in old people, pupil not large, and reacted well, T. normal, V. = 14-30, field normal, opacities in cortical lens, vitreous clear, disc good color, with physiological depression toward outer side not large or deep, narrow yellowish rim inner two-thirds and black pigment along outer edge. Left eye: anterior chamber more shallow, pupil little larger than in the right, becoming quite large when covered, but reacted little to light alone, with right reacted well enough, T. increased, V. = 14-200. Says letters appear and disappear; field defective down and out, perhaps in other directions. Opacities in cortical down and in, more than in right, vitreous clear, yellowish zone one-fourth diameter wide on which was some pigment of choroidal stroma around disc, which had deep excavation to the edge, bottom of cup bluish, strong pulsation of the several veins, but not of arteries.

October 28, 1884, which was several months afterwards, the patient returned with the following story:

For the past few weeks he had had pain in his forehead and in both eyes, and the eyes at such times were red. V. had failed in the last two weeks, did not see objects outward when walking in the street. Some pain at the time of visit, but there was very slight congestion, perforating veins were not enlarged, cornea clear, anterior chamber rather shallow. Left pupil little larger than the right; both react to light, though not actively. T. little increased—in the right rather more than in the left. V. O. D. = 14-30 slowly; V. O. S. sees motion. Vitreous clear, with shallow, but evident, depression at edge of disc. Well marked pulsation of arteries surrounded by yellowish rim covered at the outer edge by a dark pigment. Left eye: cortical opacities outward and inward reached well to the center, vessels nearly all run under at the edge of disc, zone one-fourth diameter. Pulsation of veins at the edge of disc, which was not made out in the arteries, probably on account of cortical opacities and slight unsteadiness from the cocaine. Field had contracted both downward and inward decidedly. V. in right eye = 14-40 and T. increased. Patient reported that he had lost six pounds worrying.

November 8th the doctor performed a sclerotomy downward on both sides, under cocaine. Left pupil was not dilated much when the section was made. Anterior chamber difficult to cross with the instrument, and after counter-puncture the back of the knife was just below the edge of the pupil, and as the cut was made the knife carried down the iris behind it, on which account the cut was not made quite so far down as would otherwise have been done. The iris came nearly into place on withdrawal of the knife. The pupil became small and round after esserine. In the right eye, which was operated on at the same time, the pupil had become large from cocaine, and eserine was applied to reduce its size. When the pupil was fairly small, section was made. The anterior chamber was crossed with considerable difficulty on acount of puncture made inside scleral edge. A good section was made nearly through. Considerable force was necessary to withdraw the knife, as the patient contracted the ocular muscles strongly at the time the section was being made, although he had no pain. Pupil small and round after the operation. Patient was subsequently restless, removed bandage and otherwise disobeyed orders, and two days afterwards the pupil was pointed, but without prolapse of the iris. Eventually, however, prolapse of the iris followed in both eyes. Hernia of the iris was snipped off. Pain continued and there was much bulging along the length of the wound; in three or four weeks no V., and finally enucleation.

Dr. F., commenting upon the case, inquired if the operation would not have been more successfully performed under ether instead of cocaine anesthesia. The reader thought it would have made no material difference, and if the glaucomatous condition after the operation was in any way caused by the cocaine it did not precipitate it for eleven days.

In April, 1885, Dr. G. reported the case of a man, 54 years of age, a jeweler, who first appeared with a sub-acute glaucoma, with the following history:

Three weeks before, by the order of a physician, he used belladonna in one eye. The use of the drug was immediately followed by pain and blue flashes of light. When seen by the reporter T. = + 1, and there was a dilated pupil, arterial pulsation, anaesthetic cornea and V. = 1/4. Pilocarpine gave immediate relief with increase of V., and a continuance of the pilocarpine raised the V. to 1/2. Three weeks later the patient came complaining of a feeling of uneasiness in the other eye. V. = 2-3. There was a slight increase of T. Eserine was prescribed and the next day the patient had a dilated pupil and all the symptoms of acute glaucoma. Investigation proved that the apothecary had put up the drug from a vial bearing the label of a well-known German firm of manufacturing chemists and marked eserine. The contents of the vial appeared from subsequent physiological experiments to be duboisia. Eserine relieved the symptoms, but it was thought advisable to do an iridectomy on each eye. This was done and the patient now has a V. of 1. in the second eye and 2-3 in the first.

Dr. B. reported the case of a lady, 60 years of age, who had already lost one eye from glaucoma, and came for an affection of the other. She had large pupil, shallow anterior chamber and other symptoms of glaucoma. Iridectomy was proposed and accepted. Ether was given, and a section was made with an iridectomy knife. After the section was made, the iris folded back and disappeared and could not be obtained with the forceps. Pain was, however, relieved and V. improved. Subsequently the iris prolapsed and V. continued good. The reporter thought it would be unwise to cut off the prolapse, which acted as a sort of safety valve, although he had not seen any leakage. T. was normal.

In December, 1885, Dr. H. reported a case of a woman, 53 years of age, with a history of previous pain and disease in the left eye, who came for advice because she had suffered much pain in the last six weeks with loss of sight for three weeks. Cornea was anaesthetic, T. = + 2.5. Disc in the right eye was hazy. In left eye the pupil was occluded with no reflex. V. O. D. = 6-12 and V. O. S. = 0. There was no scleral staphyloma. An iridectomy was done. T. returned in 48 hours. Subsequently paracentesis was done, T. promptly returning, the eye was enucleated. No new growth was found.

Dr. E. related the case of a woman who had suffered great pain for two weeks. T. was increased and pupil occluded. Patient said she had vision previous to the commencement of the pain two weeks before. Iridectomy did not relieve the T. The case subsequently proved to be one of intra ocular growth.

At the meeting of January 6th, 1886, Dr. E. reported the case of a lady, 35 years of age, who was first seen 14 years previously after she had undergone much worry and care. She then had V. O. D. = fingers, with contracted field, cupping of nerve and increase of T. In the left eye there was also increase of T., arterial pulsation, with no cupping of the nerve, and very slight reduction of V. Iridectomy was done in each eye. V. O. D. improved slightly. Two months ago, after the patient had been overworking for several months, she returned. In the right eye pupillary diameter was 7 mm. There was no light reaction. Nerve cupped, but the vessels sloped over along the edge of one side only. V. better than when last seen. Field as good, contracted downwards. In the left eye V. was much reduced, a deep cupping. Pupil reacted slightly to the light in spite of coloboma. Cicatrices of the previous operation were remarkably clear—the one in the left eye being hardly observable. An operation was done reopening the wounds and the patient returned home with shallow anterior chamber and lower V., but after convalescence and rest the V. returned to where it had been before the operation. T. normal, good anterior chamber.

Dr. A. reported a case which he had first seen 5 years before when it had a hypermetropia of 5. 00D., and the next year of 6. 00D. The previous May the patient had a chill after an exposure, which was followed by an acute glaucoma in one eye. When seen V. = 0. Eserine was used, and in one-half hour the patient could count fingers. Next morning, however, V. = 0. An iridectomy was done which was accompanied by great hemorrhage and the iris was not cleanly cut. In two months the patient had a fresh hemorrhage in the anterior chamber of the operated eye accompanied by T. = + 3. Three months later the fundus could be seen and the nerve was then deeply cupped. T. was great and V. = 0.

Dr. I. mentioned a case which had the ophthalmic picture of glaucoma in which eserine has been successfully used. The case had been under observation for six years. T. slightly increased, field little diminished, and V. recently was 11-15.

Dr. G. said he believed many cases were better without operation.

Dr. E. said he had seen a case with large cup of the nerve, markedly pulsating vessels, which had — T. There was a good anterior chamber, small pupil, fair field and fair V.

Dr. J. reported the case of a boy seen two days after an injury from the blow of a stone. The eye was congested, anterior chamber filled with blood. There was — T. and V. = 0. Atropine and cold applications were prescribed. Three days later there was slight increase of T., which next day was + 1. Pain increased and T. finally became + 3. The pupil was drawn backwards funnel shaped. An iridectomy was done. T. immediately diminished and at the time of the report, 14 days afterward, patient counted fingers at 20 feet.

In November, 1886, Dr. K. reported the case of a man, 60 years of age, who came with an acute attack of glaucoma characterized by dilated pupil, steamy cornea, etc., which had followed a violent attack of toothache. Eserine was prescribed and the removal of the tooth advised. In a few days the glaucoma disappeared. He has used pilocarpine since, and vision is now nearly normal. In a second case, apparently due to the irritable stump of a tooth, the pupil had been reduced in size only by repeated applications of pilocarpine, but after the removal of the tooth remained normal in size.

On the 6th of November, 1887, Dr. F. reported a case of glaucoma in a patient 37 years of age, who had the usual symptoms. V. was 1-10 and 1-20. The patient complained that with the better eye, objects appeared red. Ophthalmoscopic examination revealed many retinal hemorrhages. The reporter operated on the poor eye successfully, but afterwards an injury was inflicted upon that eye which produced a hemorrhage into the anterior chamber. This subsequently absorbed. An iridectomy was afterwards done upon the better eye with a successful result. V. now as before the operation.

Dr. E. stated that he had operated in a case of glaucoma which had, at least, one hemorrhage in the retina, in which a good result was obtained.

November 3, 1891, Dr. E. reported the case of a gentleman, 60 years of age, whose astigmatism changed twice in a year or two. The interest in the case consisted in the fact that he subsequently was operated on for acute glaucoma.

November 1st, 1892, Dr. J. reported the case of a man, 69 years of age, who had a large ulcer of the cornea with hypopyon. When the eye became well there remained a large adherent leucoma with no pupil, but good perception of light. Glaucoma developed, an iridectomy was done, after which the patient could count fingers. The lens subsequently became cataractous and was extracted through the coloboma of the iris. Considerable soft cortical remained after the operation which was gradually absorbed. The patient can now count fingers, and there has been no return of the glaucoma.

Dr. L. spoke of a case of glaucoma with a tendency to hemorrhage which was enucleated—the interest in the case being the fact that there was a secondary hemorrhage after the enucleation.

November 7th, 1893, Dr. G. mentioned a case in which there was a blow on the forehead without loss of consciousness at the time, which apparently precipitated an attack of glaucoma with greatly diminished field, an excavated disc, and a T. between + 1 and + 2.

Dr. M., Deember 5th, 1893, reported the case of a man, 60 years of age, where atropine was instilled for the purpose of ophthalmoscopic examination. There was immediate increase of T., pulsation of the arteries and pain. The symptoms disappeared in three-quarters of an hour after two instillations of eserine, and up to the time of reporting the case—two years—there has been no glaucomatous symptoms. He also reported a second case, that of a woman, 37 years of age, into whose eye cocaine had been instilled for the purpose of inducing mydriasis. An hour and a half afterwards there was pain and much increase of T. An instillation of eserine—1 per cent—stopped the attack within a few minutes. Patient was a medical case and had experienced no previous ocular trouble.

Dr. B. reported a case of a lady, 46 years of age, whose mother had been operated upon for glaucoma. Hydrobromate of homatropine had been instilled into the daughter's eyes for the purpose of examining the eyes for a refractive error. Pain developed in both eyes during the subsequent night. Myotics were used, and at first the patient did well. Subsequently the V. began to fail, although there was no increase of T. and the pupils were not large. There was considerable redness of the conjunctiva of the globe, fundus could not be seen on account of vitreous opacities. Four weeks later she went away to the sea shore for the summer, when a new attack of pain occurred, and upon examination with the ophthalmoscope the discs were seen to have become excavated. The patient subsequently had iridectomy done for pain.

Dr. M. stated that he had seen an attack of glaucoma supervene during the course of an optic neuritis after atropine and cocaine had been used in treatment.

February 4th, 1896, Dr. N. reported the case of a patient, 42 years of age, who had a V. = 0.7 in one eye and 0.6 in the other, with an astigmatism of 1.5 O. D. Homatropine was used and V. was raised to 1 with correcting glass. Twenty-four hours later a slight patch of oedema was noticed at the outer edge of the cornea. V. normal. The next morning V. O. S. = perception of light. T. + 2, and there were all the symptoms of acute glaucoma. Treatment was instituted with eserine and cocaine every two hours. V. was improved to counting fingers 6 or 8 feet with restricted field. T. was sub-normal. Loss of field was nearly to median line on the nasal side, fundus normal. The drug was used in the form of Wyeth's disks containing 1-50 gr. homatropine combined with cocaine.

Dr. M. reported the case of a woman, 45 years of age, whom he was treating for corneal ulcer. He used scopolamine, as that was supposed never to produce glaucoma. Within 24 hours after the first use of the mydriatic acute glaucoma developed + T., pain, dilated pupil and shallow anterior chamber. Instillation of eserine promptly did away with the symptoms, and there has been no subsequent attack in five years time.

Dr. O. described the case of a boy in which there was a deep physiological cupping, but which resembled in every way a glaucomatous excavation. Tension and vision normal.

Dr. E. said that in 1869, Prof. Horner thought such eyes were more susceptible to glaucoma than others, but he had seen cupping in young people where the vessels went under the edge and has followed them for years. Glaucoma has never developed.

Dr. G., in January, 1897, reported a case of glaucoma where an attack of herpes zoster precipitated an acute attack of glaucoma in one eye and a sub-acute glaucoma in the other. V. was reduced to 2-10, T. was + 1, but under the use of pilocarpine V. and T. returned to normal and remained so. Subsequently the patient had another attack of herpes zoster, and with it a glaucoma. V. was reduced to the counting of fingers at 3 or 4 feet. Operation was refused at first, but afterwards accepted, and an iridectomy was done. The resulting V. was .3.

February, 1897, Dr. P. reported a case of glaucoma which had been preceded by the instillation of sulphate of atropine by a practitioner out of town. V. was fingers at 4 feet. Eserine was immediately instilled and an iridectomy done the next morning. At the time of the report, three weeks after the operation, V. was .5.

December, 1897, Dr. J. reported a case of a lady, 55 years of age, whose eyes had annoyed her for some time, not so much by being painful as by blurring and lachrymation. She was etherized for an operation for hemorrhoids, which was immediately followed by an attack of glaucoma in one eye. T. = + 3, V. = 0. Eserine was instilled with no benefit. Enucleation was done. In the other eye there was an incipient cataract and V. = .5. On the day following the enucleation acute glaucoma supervened in the second eye. Eserine was used for two days and then an iridectomy was done, which gave immediate relief from pain.

Dr. E. thought a glaucoma might start up in an eye predisposed to it from any sort of a shock.

Dr. M. had seen it supervene from shock caused by a fright, and had twice seen it happen in his service at the Massachusetts Charitable Eye and Ear Infirmary following an iridectomy upon the other eye; and once a patient was admitted for operation for glaucoma in one eye, kept over night before operation, and during the night acute glaucoma developed in the second eye.

Dr. Q., in January, 1898, reported a case of a lady 73 years of age, and feeble, who had recurring attacks of pain in one eye, which had glaucoma absolutum. T=+1 or 2. In the better eye V.= shadows at 1 foot. An operation was done under holocain, instilled 4 times at 5 minute intervals. She was too feeble to take ether. There was but little discomfort experienced during the operation, and the patient can now distinguish photographs of members of the family.

Dr. M., January 3, 1899, reported a case of a patient of his with chronic glaucoma, who had applied for treatment to a well known quack, who treated the eye with electricity. An acute glaucoma came on after the first application and absolute blindness supervened.

At a meeting in October, 1899, Dr. M. reported a case of acute glaucoma in both eyes. The patient was a physician, 44 years of age, who had done a very considerable amount of microscopic work. He was also greatly addicted to the use of morphia. Three weeks previously he had an acute glaucoma in the left eye and consulted an oculist, who put in eserine. The next day he had acute glaucoma supervene in the right eye, and since that time he had had no treatment. When seen he had the typical dilated pupil, steamy cornea, shallow anterior chamber, hazy vitreous and T+1 in each eye. V.

in left eye = shadows. In right eye = 0. Iridectomy was done under ether in both eyes. During the convalescence, the anterior chamber of the right eye was twice one-half filled with a hemorrhage, which, in one case at least, originated posterior to the iris. There was slow recovery, but at the date of the meeting, with proper correcting lenses, the patient had V. in the right eye = .4, and in the left eye = .2. As the data is at hand, it may be well to add that in May, 1900, V. in the left eye = .3, and in the right eye = .5.

Thus, in all, since the foundation of the Society, there have been reported or mentioned 32 cases of acute glaucoma, and the most interesting fact is, that the precipitating cause is mentioned in 27 cases.

We all know perfectly well that in persons predisposed thereto, mental or physical shock, or the use of mydriatics, may precipitate an attack of acute glaucoma. But it is worth while, occasionally, to pause and bring together such facts as substantiate our beliefs. These cases show nothing new in this regard, but it is well to examine such a series of cases to see, if possible, from what source the greatest number of such catastrophes spring, and what has been the final outcome.

These cases may be roughly divided into two classes — mental and local. Of the purely mental cases, we have here reported as precipitating glaucoma, in two cases, worry; in one case, fright; in one case, apprehension—that in which glaucoma supervened in the healthy eye the night before the proposed operation on the diseased one. In four cases an operation under ether—three of which were operations for glaucoma in the other eye and one an operation for hemorrhoids. In one case a blow on the forehead, in which the mental shock was undoubtedly the precipitating cause. In four cases the attack seems to have been precipitated by pain in other branches of the fifth nerve—two of these being toothache and two herpes frontalis. In one case the attack was attributed to exposure to the cold, which was followed by a chill. It is rather curious that in this long series of cases, sudden grief has not appeared as a cause.

In one case an acute glaucoma was developed in a chronic case by the application of electricity directly to the eye.

It has been believed for many years that atropine would precipitate an attack of glaucoma in an eye predisposed to it, and we have been told, from time to time, that the safe mydriatic had been found which would not precipitate glaucoma, but we have had reported here nine cases due to atropine, two cases due to homatropine, one case due to cocaine, one case due to scopolamine, and one case due to duboisia—an array, which, to my mind, tends to establish the fact that it is the mydriasis itself, and not the drug used, which produces the disastrous result.

It would not seem strange that an attack of primary acute glaucoma, precipitated by any of the causes above mentioned, should be more easily controlled than one which supervened from a gradual increase of the intraocular conditions tending towards glaucoma to the point at which the glaucoma appears to come spontaneously, *i. e.*, without any directly precipitating cause. This proposition is borne out by the cases here reported, as twelve of them, so far as these records show, were cured by the use of myotics alone, and, as in three other cases an iridectomy was done almost immediately, it is possible that they, too, might be now added to this list, if the gentleman in charge of them had not been distrustful of the efficacy of myotics. This is in sharp contrast with the experience of ophthalmic surgeons in cases of acute glaucoma not precipitated, as these were, by some known cause.

We have, in addition, three cases, which may well be called secondary glaucoma—one originating in connection with a leucoma adherens, one in connection with a case of iritis, although both were using or had used atropine, and one in connection with intraocular tumor.

The fact that a glaucomatous condition is often preceded by a change of refraction is here confirmed by the report of three cases.

The operation of sclerotomy in two eyes of the same patient was a failure in each case. The operation of iridectomy was performed sixteen times and seems to have been unsuccessful in three cases, if we include the case of sarcoma of the choroid which had secondary glaucoma.

It is reassuring to note the fact that in at least three cases there were hemorrhages in the retina at the time of the operation, and in two cases hemorrhage into the anterior chamber occurred at various times after iridectomy was done without preventing a fairly successful ultimate result. In one case—two eyes—it was deemed necessary to repeat the incision in the cornea several years after the primary operation, and this procedure met with success in reducing the tension up to the time the case was reported.

Only one case is reported in which myotics were successfully used for years. Two cases in which they were relied upon resulted in loss of vision.

Although it would not be fair in so small a number of cases to deduce any general rules, yet, as these cases were all reported because the gentlemen in whose practice they occurred thought that they were particularly instructive, we will make a summary of them as follows: 1st, that acute glaucoma is often precipitated by mental or physical shock and by mydriasis; 2nd, that such cases are more easily controlled than the ordinary case of acute glaucoma; 3d, that myotics are very often the only treatment needed in such cases; 4th, that the operation preferred by the members of this Society is an iridectomy; 5th, that in a person over 40 years of age, when the pupil is dilated for the purpose of examining the fundus or refraction, the instillation of a myotic before the patient leaves the office, as a matter of routine, would, in all probability, prevent the supervention of acute glaucoma in cases predisposed thereto.

SADDLE BRIDGE EYE-GLASSES.

BY EDWARD JACKSON, M. D.
DENVER, COLO.

Illustrated.

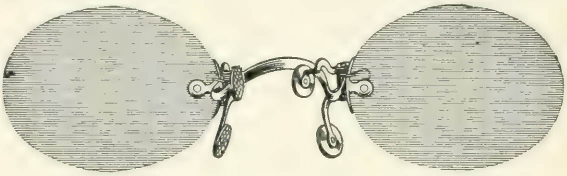
The form of eye-glass frame devised by Mr. R. B. Finch, of Denver, and now made by Meyrowitz, of New York, is such a decided departure from the general plan of eye-glasses retained in place by a connecting spring, as to merit attention from ophthalmologists.

As shown in the accompanying figure, the two lenses are connected by a rigid saddle-bridge, as in ordinary spectacle frames. The frame is kept on the face by a pair of spring clips, one attached to each end of the bridge. Each of these is pressed against the nose, by the action of its separate spiral spring. Attached to each clip is a projection, pressure upon which releases its hold upon the nose, when the glasses are to be put on or removed.

The general superiority of spectacles over eye-glasses has been recognized since the adoption of the saddle bridge, invented by Dr. Charles Hermon Thomas, of Philadelphia, nearly twenty-five years ago. If we were compelled to return to the use of spectacles with such bridges as were in use prior to that time, such general superiority would vanish. Whether the inferiority of eye-glasses will wholly disappear with the adoption of the saddle bridge is doubtful. But in some respects and for some faces it is thus overcome.

The saddle bridge thus applied places eye-glasses on an equality with spectacles in the matter of retaining cylinders and prisms in the proper position before the eye; and also with regard to adaptability to the width between pupils, the length of lashes, and the height of the glasses before the eyes. The retaining clips seem to keep the glasses as securely in postion as any pattern of eye-glass yet devised. But there are a few noses upon which any eye-glass will have an insecure hold, or will be retained only at the cost of excessive pressure or undue dragging on the skin. For these noses, perhaps, spectacles will remain the only satisfactory mounting. But apart from these exceptional cases, the saddle bridge eye-glass adds to our resources.

One of the conditions of a successful correction of ametropia is that the glasses shall be worn. Eye-glasses worn will be of more use than spectacles that are not worn, or are not worn at all times that they are needed. Where success in giving relief depends on conforming to the patient's ideas about his or her personal appearance, it is a decided gain to have an eye-glass mounting, that can be relied on to keep the axes of cylindrical lenses exactly in the proper meridian before the eye.


Saddle Bridge Eye-Glasses.

When Not to Operate in Strabismus.—Any cause of muscle imbalance, says Robin, whether a tendency to incorrect turning of the eye, aphoria or an actual malposition, atropia, requires before operation: 1, a thorough study of the patient's age (actual, not in years), employment, general health, social position, character and psychologic state, both habitual and at the time he applies for relief; 2, careful measurement under atropin of all errors of refraction and the constant and persistent amount of defect; 3, the patient and persevering endeavor in esophoria or esotropia to re-establish balance by enforced rest of the accommodation with atropin and in exophoria or exetropia by muscle gymnastics, general tonics, outdoor exercise and a suspending of all eye work at the near point.

A CASE OF A FREE CYST IN THE ANTERIOR CHAMBER.*

BY R. DENIG, M. D.
NEW YORK.

The patient, 31 years old, suffers from a small, freely-moving cyst in the anterior chamber of the right eye. When the head is held in a normal, upright position, the cyst is found in the lower corner of the anterior chamber; if, however, the patient is asked to incline the head, or to turn it to one side, the cyst moves toward the side in question, or sinks into a deeper place, to slowly resume its former place after the head is turned back or raised.

The cyst has an equatorial diameter of two millimeter; it is not exactly round, but more disk-like in shape; its wall is of a brownish-red color, and its contents are transparent, or, rather, translucent, since, with the use of the binocular loup, the iris lying beyond can be clearly observed.

The vision is normal, with existing slight hypermetropic astigmatism. In the anterior lens capsule, on the upper and outer edge of the pupil is seen a triangular, whitish film; at the same place a posterior synechia can be made out. Of a persisting pupillary membrane, nothing is visible. The patient does not remember to have ever had an inflammation in this eye, and insists that she has always had the reddish-brown spot on the eye.

Similar cases have been mentioned in the literature only twice, one by Fuchs, and the other by Businelli. To the same group belong, however, also the cases of easily movable pigment corpuscles in the anterior chamber, such as have been described by Streatfield and Bock, and only very recently by Apetz. As a matter of fact, the case mentioned by Fuchs forms the transition between the two varieties. Briefly, it was this: In a boy of eleven years Fuchs chanced to discover a free-moving, little clump of pigment. Eleven days afterwards, when he saw the boy again, this clump had changed into a cyst; and again, twelve days later, this cyst burst, through a blow upon the eye; but it formed again four days later.

An anatomical examination of such a cyst, or pigment corpuscle, has been made by Businelli and Troitzki, and also by Bock. Two groups could be differentiated: in one, the freely-moving pigment corpuscles, consisting of uveal pigment, and the second, in which pigmentous connective tissue could be observed. This answers the question concerning the source of these formations, inasmuch as they develop either from loosened melanomas on the edge of the iris, or else it is a fibrous thread, that separates itself as a remainder of a persisting pupillary membrane, and sinks down to the bottom of the anterior chamber.

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*Case presented before the Academy of Medicine of New York, Section on Ophthalmology, March 17, 1902.

To this latter group, Businelli reckons his case, in which the cyst was connected by a fine transparent thread to the edge of the pupil. Businelli considers his cyst as the remainder of a pupillary membrane, and he is of the opinion that its contents can be nothing else but humor aqueous, which penetrated into it through endosmosis.

As is well known, the so-called melanomas of the iris are small growths of the pigment lamina of the iris around the edge of the pupil. They are frequently found in animals, for instance, in horses, and Holmes describes them as present in great numbers in a man, who happened to belong to the medical fraternity. But with these growths in the animal eye is connected not only the pigment layer, but they are resting on a pretty solid connective tissue, that can easily be seen through meridional sections through the iris. In most cases it is a matter of a local, congenital inclination, that is to say, towards an increase of the uveal pigment, though an inflammable irritation in the form of an iritis may also occasionally cause such a condition.

That such a pigment corpuscle may, under certain circumstances, transform itself into a cyst, is explained by Fuchs in this way: that the pigment corpuscle may have rolled in, so that the two edges touched one another, became united, and inclosed a hollow space, which later became closed up in all directions and at the same time expanded; or else it might be considered a degeneration of some cells in the interior of the little clump of pigment.

Bock asserts that it could only be a fatty degeneration, or else a so-called colloid degeneration. Either of them is very rare in the cells of the uvea, and its products, suspended in the vitreous humor, could only be with difficulty sustained by the iris, so that the latter would respond at once with more or less acute irritation. But in all known cases it is specially accentuated that the eyes in question did not suffer from any irritation whatever. Therefore, still another possibility presents itself, namely, the anatomical investigations in his case proved that the pigment cells form a membranous stratum, and that the cells are built up in layers above one another. Perhaps these layers are eroded through the flow and the movements of the vitreous humor, as has been described, in a similar manner, in certain cases of iris cyst. With the great delicacy and thinness of the walls, a very small force, no doubt, suffices to burst them, so that instead of the cyst, a little clump of pigment is seen in the anterior chamber.

FURTHER HISTORY OF A CASE OF FISTULOUS ULCER OF THE CORNEA — ENUCLEATION — ACUTE GRANULAR CONJUNCTIVITIS AND TRACHOMA FROM INFECTION BY MEDIUM OF ARTIFICIAL EYE.

BY H. V. WÜRDEMANN, M. D.,
MILWAUKEE, WIS.

In the November, 1901, number of THE OPHTHALMIC RECORD, p. 364, I noted the following case of "Central Fistulæ of the Cornea Persisting Several Years." It seems that this case was published too previously, for there has been considerable of a pathologic history since that time.

"F. T., German, age 65, of Sheboygan, came, June 14, 1901, with central corneal ulcer, stating that his eye had been sore for two years. This was curretted and cauterized with 1:1000 sublimate solution, atropine instilled, hot compresses used at the hospital for a week, when he returned home no better, coming back for treatment June 22, when I thoroughly cauterized the cornea with galvanó-cautery, instilled atropine, and made applications twice a day of 25 per cent protargol solution to the corneal ulcer for several days, after which the ulceration was touched with tincture of iodin. The patient went home under the care of Dr. Reineking, who used the same treatment for a week; the patient then returning to the hospital, the fistula being yet open, was again curretted, compressed and bandage applied, with the result of the ulceration closing by firm union. As there is partial cataract and some incarceration of the iris by anterior synechia, and the ulcer has occupied the pupillary area of the cornea, the visual area is, of course, occupied by a large leucoma and vision in this eye is useless."

November 22nd the patient returned, with the eye in a staphylomatous condition and with glaucomatous tension, and eneucleation was done, not only for cosmetic reasons, but to relieve the accompanying pain. Examination of the bisected specimen showed an eyeball enlarged in all diameters, lens absorbed and total anterior synechia, the iridic and ciliary tissue atrophic, the retinal elements degenerated, the cornea and sclera greatly thinned, the optic nerve cupped and atrophic—a pathologic picture of secondary glaucomatous degeneration. A very satisfactory prothesis with a Snellen hollow walled eye was made, and the patient returned home in good spirits.

I thought then that I had seen the end of the case, but January 8, 1902, he returned with severe ophthalmia in both the orbit of the enucleated right eye and in the left. There was no affection of the left cornea, the inflammation being mostly limited to the lids, the retrotarsal folds greatly thickened, reddened and inflamed; examination of the copious purulent discharge showed many epithelial cells and white blood corpuscles, together with several microorganisms, there being present a bacillus, a micrococcus and a streptococcus. The recent history showed that he had first acquired the inflammation in the socket of the enucleated eye, it being evidently conveyed there by the artificial eye. The inflammation had occurred about two weeks before, and two days after the right orbit had beome infected the left eye became inflamed. The method of infection in this case is similar to that of a case of gonorrhœal infection, by the medium of an artificial eye, which I saw in 1890, and which was reported by me in THE OPHTHALMIC RECORD, September 1, 1892.

The patient was sent to the hospital and treated by iced compresses, lavage with 1:10000 sublimate solution, nitrate of silver and protargol solutions, and later on was treated by applications of bluestone and cuprol. The disease presented the characteristic appearance of acute granular conjunctivitis of a severe type and has progressed on to the chronic stage, it being yet present, and will probably not be cured for several months. He remained in the hospital until March 1st, and returned home, being treated there by applications of zinc collyrium, yellow oxide ointment, cleanliness, hot applications and blue-stone or nitrate of silver, used by his family physician according to indications. He returned for further consultation March 18th and seemed to be much improved, although the conjunctiva is by no means normal; the tarsal conjunctiva is yet inflamed and rough; the ocular conjunctiva and the cornea have escaped complications, although the conjunctiva has been hyperemic.

This case has certainly pursued a remarkable course and a lesson may be learned from its history. I think that the cauterization of the cornea disturbed the artificial process of leakage of the aqueous, which had been established through the corneal perforation, and produced a glaucoma, whereby the corneal ectasia occurred, resulting in anterior staphyloma. Judging from the effect of closing fistulæ of long duration, in this one case, I would be chary about the same procedure in the next that I may see.

The carrying of the infection by means of the artificial eye is most probable and is a rather rare occurrence. It would be most likely to occur in gonorrhœa, as in the case cited in THE OPHTHALMIC RECORD, September, 1892. This case was certainly not gonorrhœa and has pursued the regular course of granular conjunctivitis, the present stage being that of trachoma.

SIMPLE METHOD OF SUTURING THE TENDONS IN ENUCLEATION.

BY FRANK C. TODD, M. D.
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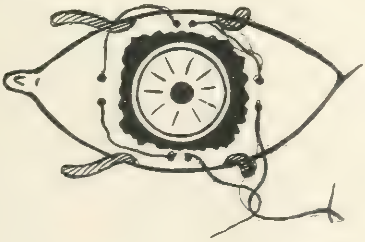
Illustrated.

While Mules' operation gives by far the best results, there are certain few cases where there are contraindications, or where, as in old people, eneucleation, being quicker performed, is selected. In these cases it is my custom to suture the tendons. The method which I use is simple, quickly performed and efficient.

Briefly described, it is as follows: After severing and dissecting up the ocular conjunctiva in the customary manner the superior rectus is picked up on a hook, a curved needle is passed from without inwards, through the conjunctiva and tendon, and out again through the tendon and conjunctiva, thus forming a loop which includes tendon and conjunctiva; the tendon is then severed near its scleral



attachment; the internal is picked up with a hook, and the same thread carried on in the same manner through the conjunctiva and tendon, after which the tendon is severed. The same thread is carried on around in the same way through the inferior rectus and external rectus and their tendons cut (see Fig. 3); the optic nerve is severed and the globe removed. The two ends of the thread are then tied, and the tendons and conjunctiva are thus brought togethr with a purse-string suture.

Scarcely any more time is required to perform this operation than when sutures are not inserted.

Animals with Three Eyes.—(From *Melbourne Argus.*) Nearly every one has heard of the tuatara, the curious, iguana-like looking creature, now found on only one or two islands off the coast of New Zealand, and supposed to be the oldest living type of animal on the face of the globe. One of the most curious features is an organ on the head, which at one time was spoken of as the pineal gland, but which Dr. Dendy discovered to be in reality a third eye. His paper on the subject caused the greatest interest in the English scientific circles, and, as an illustration of the way in which research is specialized nowadays, it may be mentioned that while Dr. Dendy devoted himself to the study of the third eye, one distinguished English biologist is "working out" the skeleton, another the kidneys, and so forth. In a short time, therefore, our anatomical knowledge of the tuatara ought to be complete.

More recently Dr. Dendy has discovered another New Zealand creature possessing a third eye. This is the New Zealand lamprey, a favorite article of food among the Maoris. The third eye is situated right on top of the head and is covered with a thin coating of skin. It is doubtful whether it is now of any practical use for seeing, but Dr. Dendy believes that at one time, far back in the world's history, there were two eyes on the top of the lamprey's head. He is further of the opinion that at one time the tuatara also had two eyes where now only one remains. In the tuatara it is the left eye which has survived, while in the lamprey it is the right one.

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ABSTRACTS.

ABSTRACTS OF CURRENT OPHTHALMIC LITERATURE.

BY G. E. DE SCHWEINITZ, M. D., AND E. A. SHUMWAY, M. D.

The Pathogenesis of Chronic Nicotine Amblyopia.—A Birch-Hirschfeld (*Archiv f. Ophthalmologie,* LIII-I) reports the results of the histological examination of the eyes in a case of chronic nicotine amblyopia, which had been under observation in the Leipsic eye clinic for over seven years. They are of especial value, as he made use of the newer staining methods for neuroglia (Mallory), and for the ganglion cells of the retina (Nissl). His conclusions are as follows: There were marked changes in each of the three forms of tissue in the optic nerve (nerve fibers, connective tissue, glia). The variety and localization of the degeneration of the nerve fibers were the same as in the cases of Uhthoff and others, viz.: a degeneration of the papillomacular bundle, which occupies a triangular segment, on the temporal side of the nerve, close to the eyeball, and assumes a central position further back. The thickening of the septa produced a picture differing essentially from that of simple gray atrophy, and he believes that it must be attributed partly to a purely physical contraction of a tissue which contains many elastic fibers and partly to an action proliferation of the connective tissue cells. The degeneration of the nerve fibers in the affected area was not complete, and the localization of the normal fibers, both in the peripheral as well as the central portion of the bundles, speaks against, rather than for, the assumption of an atrophy resulting from the pressure of a proliferated connective tissue. Moreover there were no signs of a progressive interstitial inflammation; neither infiltration nor changes in the vessels and there was well marked proliferation of the neuroglia, which would point toward a primary nerve fiber degeneration, with accompanying proliferation in the connective tissue. He thinks that the increase in the number of cells of the interstitial tissue, which has been described by others, is probably to be attributed to the increase of the glia cells.

In the *retina* there were pronounced degenerative changes in the ganglion cells, analogous to those found in experimental methyl-alcohol poisoning. This degeneration was irregularly distributed over the central and peripheral portion, in such a manner that normal and degenerated cells were found in close proximity. The other retinal layers showed only slight variations from normal.

From the anatomical investigation Birch-Hirschfeld believes that there was no ground for the assumption of a primary interstitial inflammation of the optic nerve, while there was much that pointed directly away from this conception, and rather toward a primary involvement of the nervous elements of the nerve and retina, as a result of the specific action of the poison, with an accompanying proliferation of the glia, and moderate increase in the connective tissue. *He believes also, from analogy with other poisons and as a result of experimental investigations, that the ganglion cell changes in the retina precede, or at least come at the same time as the nerve fiber degeneration.*

These conclusions are in direct opposition to those of Uhthoff, who assumes that the entire process is an interstitial inflammation of the nerve and are much more in accordance with the views of Nuël. He hopes to be able to confirm them by animal investigations later.

Bacterium Coli as a Cause of Hypopyon-Keratitis.—Bacterium coli has been found by Axenfeld, Cramer, Bietti, Groenouw and others in inflammations of the conjunctiva. Zur Nedden (*Klin. Monatsbl. f. Augenheilk,* January, 1902) found it in pure culture in a traumatic ulcer of the cornea and was able to produce ulcerative keratitis in a rabbit by inoculation with a pure culture of the organism in bouillon. From this experimental ulcer he succeeded in recovering the same organism and produced the same condition by further inoculation of the second generation.

Glaucomatous Excavation of the Lamina Cribrosa Without Excavation of the Nerve.—Roscher (*Klin. Monatsbl. f. Augenheilk,* December, 1901) describes a case of glaucomatous excavation of the lamina cribrosa in which the excavation was filled out by the œdematous and infiltrated optic nerve tissue, so that the head of the nerve projected above the level of the surrounding retina. He believes that the excavation was a long standing condition, which was due to increased tension, and that it was filled out subsequently by an enormous swelling of the remaining nerve tissue, despite the advanced atrophy.

Subconjunctival Injections of Iodipin.—Naegeli (*Archiv. f. Augenheilk.*, XLIV, Ergänzungscheft) has made a number of experiments with Iodipin, a new iodine product, which is said to possess an equal therapeutic value as the other iodine salts, and yet to produce no unpleasant symptoms (idoism), even after prolonged use. The drug may be administered either by mouth or subcutaneously, and therefore should be effective as an absorbent when injected beneath the conjunctiva in place of sodium chloride. After subconjunctival injections in the rabbit, he was able to recover from 1½ to 2 per cent of the iodine from the tissues of the eyeball, whereas after the insertion of iodoform beneath the conjunctiva, only a trace of iodine could be found in the eye. In an eye in which iritis had been produced by the injection of a sterilized culture of diplococcus in bouillon, the subconjunctival injection of iodipin caused a rapid absorption of the hypopyon. Iodipin has no germicidal action on bacteria in artificial cultures, and probably will be of no value as an antiseptic, but Naegeli believes that it will be a valuable drug to promote absorption of pathological exudate. The injections are practically painless and cause no local injection. He has tried it in eight cases in man, injecting 0.2 to 0.3 gr. of a 10 per cent solution every third to eighth day, according to the rapidity of action desired. In two cases of scleritis, one of keratitis dendritica, one of keratitis neuroparalytica, one of choroiditis and one of neuro-retinitis, he obtained very rapid improvement, but in one of vitreous hemorrhage there was apparently no change. The cases were few in number, but he believed the results achieved warrant a further trial of the remedy.

The Dilatator Muscle of the Iris.—W. Stock (*Klin. Monatsbl. f. Augenheilk.*, January, 1902) by examination of eyes from which the pigment has been removed, has been able to demonstrate satisfactorily the existence of a muscular dilator iridis, in dogs, cats, oxen and horses. In these animals it is but slightly developed, whereas in the otter it is relatively much larger, composing fully one half of the thickness of the iris. The cells are arranged in parallel bundles; they possess the long, rod-like nuclei which are characteristic of involuntary muscle tissue and stain in the same way. Stock's investigations are an independent corroboration of the work of Hans Virchow upon this animal.

Concerning the Treatment of Retinal Detachment.—Gallus (*Zeitschrift f. Augenheilk.*, December, 1901) gives the detailed histories of eight cases of detachment of the retina, which were treated by the method recommended by Dor, viz.: cauterization of the sclera over the detached retina, subconjunctival injections of concentrated salt solutions, and leeching. In three of these other methods had been used without effect. In two cases the treatment had to be stopped for various reasons. In the remaining six there was almost immediate improvement and complete restoration in all but one. Subsequently, however, the detachment recurred and ultimate success was achieved in only one case, and a partial detachment kept from further advance in a second. He believes that in cases in which a primary subretinal exudate is to be accepted, and not too long time has elapsed since the appearance of the detachment, the method will always produce a reapplication of the retina, if it can be pursued for several weeks. The vision is usually improved, but all parts of the retina may not recover their full function, particularly perception of color. The method depends partly upon the production of an adhesion between the eye tunics to prevent relapse, and in this respect it must be improved by subsequent experience. The use of strong salt solution is also exceedingly painful, requiring the administration of morphia, and for this reason the patients are more difficult to control.

The Optic Nerve and Arterio Sclerosis.—As the result of a number of anatomical examinations, Liebrecht (*Archiv. f. Augenheilk.*, December, 1901) comes to the following conclusions:

1. The optic nerves are injured by arterio-sclerosis more often and in a much greater degree than has been hitherto assumed.

2. The injury to the nerves does not take place, as is usually believed, in the bony canalis opticus, because in this position the ophthalmic artery has already entered the dural sheath of the nerve and can no longer exercise any pressure upon the nerve. The pressure can, however, be exerted in three other places. Most frequently this occurs in the fibrous portion of the canal, within the skull cavity, where the ophthalmic artery may indent the nerve in a longitudinal direction. A second position is the upper, sharp bordered edge of the fibrous canal, against which the nerve may be pressed by the ascending carotid, and the third is in the middle, between the canal and the chiasm, at the point where the carotid and the anterior cerebral artery cross above and below the nerve.

3. The atrophy of the nerve tissue is at first a pure pressure atrophy, which progresses upward to the chiasm and downward to the nerve fiber layer of the eye. To this pressure atrophy there is subsequently added a secondary proliferation of the connective tissue, and new vessel formation.

4. The atrophy decreases rapidly above and below the seat of injury. Where there is an increase in the neighborhood of the eye we must assume a separate, complicating atrophic process in the nerve.

5. Disturbances of function have not been definitely proven. Probably there is no pronounced reduction of vision in the more usual lesion (formation of a cicatricial furrow), certainly no complete amaurosis. This is only possible in complete transverse division of the nerve.

6. The central artery is, in many cases, free from arterio-sclerotic changes, even in high-grade arterio-sclerosis of the carotid and ophthalmic arteries.

A Contribution to Operations in Ophthalmic Practice.—In cases of adherent leucoma, with beginning thinning of the cornea and the formation of staphyloma, Sachs (*Zeitschrift f. Augenheilk.*, January, 1902) suggests trephining of the central part of the cornea with von Hippel's trephine (diameter 2 or 3 mm.), release of the iris from the edges of the wound and its separation from the posterior surface of the trephined disc and the replacement of the disc. He has used the method in several cases and believes its success is due to the permanent lowering of the intraocular pressure, as a consequence of the release of the synechiæ, and to the flattening of the cornea which result from the scar tissue. Sachs also recommends the use of a strong pencil of light directed against the sclera, for illuminating the interior of the eyeball, when searching through a scleral opening for a piece of copper or other non-magnetic particle, which is supposed to be in the vitreous cavity.

Specific Punctate Interstitial Keratitis.—Ammon (*Archiv. f. Augenheilk.*, December, 1901) reports a case of keratitis interstitialis punctata specifica, a condition which was first described by Manthner in 1871. The patient had been under treatment for syphilitic iritis, and when this inflammation cleared up, the previously transparent cornea was found to be the seat of numerous large and small, yellowish-gray punctate opacities, which developed in the course of 24 hours. They were sharply outlined and were most abundant in the lower two-thirds of the cornea. Between the infiltrated areas the cornea was perfectly clear and there was only a slight elevation of the surface over the larger spots. Under anti-syphilitic treatment these exudates were all absorbed during the course of seven weeks and left no trace of opacity behind. The case is evidently identical with those described by Manthner, and is very rare. Manthner believed that the condition was a tertiary manifestation and considered the infiltrates gummatous in character. V. Ammon, however, disputes this, because of the rapidity of their formation and their subsequent complete absorption. Moreover, they appeared simultaneously with secondary lesions of the iris and mouth. He thinks the changes are probably due to a lesion of the endothelial cells of the corneal lymph spaces and the consequent coagulation of the circulating lymph; that it is a secondary symptom and a mild form of keratitis parenchymatosa.

Concerning Unusual Lesions in the Optic Nerve.—A. Siegriest (*Archiv. f. Augenheilk.,* XLIV, Ergänzungshaft, 1901) describes in 51 out of 80 eyes, enucleated for various conditions, a fatty degeneration of the nerve fiber bundles of the optic nerve, which appeared in the form of irregular spots. By the confluence of several degenerated areas the affection may assume a more diffuse form.

As a result of this degeneration there is an infiltration of the surrounding neuroglia meshes with fat and with masses which resemble myelin and stain black with Weigert's hæmatoxylin. A further consequence of this degeneration is a secondary proliferation of the neuroglia in the affected area, and even a partial new formation of the nerve sheath. A less common appearance is a total absorption of the entire area of softening, or at least of its peripheral zones. For this comparatively common affection of the nerve he proposes the name "*punctate fatty degeneration of the optic nerve.*" Among the conditions in which he found it there were cases of panophthalmitis, irido-cyclitis, ulcus serpens, cyclitis, phthisis bulbi, sarcoma choroideæ, glaucoma absolutum, chronic alcoholism, meningitis, arteriosclerosis, tabes, leucœmia, etc. The cause he believes is probably a disturbance of nutrition of the new bundle, either through toxines circulating in the blood, or by disease of the fine capillaries which supply the bundles.

Symmetrical Orbital Tumors.—Goldzieher (*Zeitschrift f. Augenheilk.,* January, 1902) gives the history of a case of supposed orbital sarcoma, in a girl 16 years of age, which was operated upon by another surgeon, in which there was a recurrence of the growth and marked exophthalmus on both sides within a few weeks. The child died shortly afterward of pneumonia and pericarditis, and the autopsy showed that the tumors were due to a syphilitic periostitis of the orbital bones, with ossification of the newly formed tissue, and not to sarcoma. Other cases of symmetrical gummata of the orbit, associated with periostitis, have been reported by Schott, Walter and others. Comparing his case with the others reported, Goldzieher gives the following points for differential diagnosis. A rapidly increasing exophthalmus, associated with tumor formation along the upper margin of the orbit, with dislocation downward of the eyeball, is always suggestive of syphilis, even if in the absence of a specific history. The diagnosis becomes more probable, if there is a thickening of the orbital margin, due to periostitis. Tenderness on pressure over the bone and spontaneous pain at night are also significant symptoms, and the diagnosis is still more certain if periosteal nodules develop on other parts of the skull, particularly if the orbital changes are symmetrical and develop rapidly on one side after the other.

Concerning the Value of Skin Flaps, Without Pedicle, in Plastic Operations on the Lids.—Kuhnt (*Zeitschrift f. Augenheilk.*, January, 1902) very strongly recommends the use of skin flaps, without pedicle, in plastic operations to replace eyelids distorted or ectropionized by scar tissue, provided that the edge of the lid and its conjunctival surface are still intact. If the individual does not suffer from any dyscrasia or chronic suppurative process, and if the orbital walls and the accessory cavities of the nose are healthy, prompt healing of the flap should be secured. He makes it a condition that the contraction of the underlying scar tissue shall have reached its maximum. This tissue must be entirely removed. The flap should be 1½ times the size of the surface to be covered and should consist merely of the skin, all subcutaneous tissue being cut away. The skin edges of the wound are undermined for a distance of 4-5 millimeter and the bleeding must be entirely checked before the flap is fitted in place. Several incisions should be made through the latter, to prevent the accumulation of fluid beneath it, and a bandage carefully applied. This is not changed for a week, or for at least four days. In from eight to ten days the wound will usually be healed. Subsequent massage of the lid with vaselin gives increased certainty of a good result.

REPORTS OF SOCIETIES.

WESTERN OPHTHALMOLOGIC AND OTO-LARYNGOLOGIC ASSOCIATION.

Seventh Annual Meeting, Held at the Auditorium Hotel, Chicago,
April 10, 11 and 12, 1902, Under the Presidency of
Dr. Christian R. Holmes, of Cincinnati, Ohio.

PROCEEDINGS OF THE OPHTHALMOLOGIC SECTION.

Dr. F. C. Hotz, of Chicago (by invitation) delivered an address on ophthalmology.

The Misuse of Glasses. The careful adjustment of glasses for the accurate correction of errors or refraction has achieved so many brilliant results that refraction work is now very prominent, if not the most prominent, part of ophthalmic practice. But this condition has developed an unmistakable tendency to overrate the influence of ametropia, and to underrate other influences; to attribute every discomfort in the use of the eyes to errors of refraction, and to prescribe glasses which fail to benefit the patient, when his complaints are readily relieved by paying proper attention to other conditions than his ametropia.

Glasses are often prescribed when the apparent asthenopia is due to pathologic conditions of the conjunctiva, which are overlooked because they are confined to the upper retro-tarsal folds, and because these folds are not brought into view by the ordinary method of everting the upper lid. But they can be easily exposed by a gentle, steady back pressure applied upon the eyeball, while the everted lid is firmly held against the supraorbital margin.

Another class of patients not infrequently the victims of superfluous glasses are the sufferers of blepharitis. This disease makes the eyes exceedingly sensitive and irritable; they are inclined to become red, watery and painful. Blepharitic patients, therefore, especially when applying themselves to close work, usually complain of blurring of vision and pain in the eyes. In many cases the scales along the lid borders are like fine dust and easily overlooked, and the patient's discomfort is mistaken for accommodative asthenopia. Glasses are prescribed and faithfully worn, but without the expected benefit. The proper treatment of the lid borders quickly relieves the patient, so that he can use his eyes with perfect comfort, though the glasses are discarded. In other blepharitic cases the disease is too well marked to be overlooked, but still the oculist prescribes no local treatment, but only glasses, because he believes in the doctrine that blepharitis is caused by refraction errors and cured by the correcting glasses. This doctrine is not sustained by clinical facts. Refraction errors are not the cause of the lid disease, but they may sometimes aggravate it and render local treatment less effective. The refraction, therefore, should always be tested, and if the disease does not promptly yield to treatment the ascertained ametropia should be corrected.

Ametropia of very low degree may sometimes be the source of much distress, and the correction of refraction errors of any degree is warranted, provided a full consideration of all conditions leads to the conclusion that they are the chief source of a contributary cause of the patient's complaints. But neither science nor common-sense can approve the prescribing of glasses for slight refraction errors in cases where the apparent asthenopia is plainly due to local or general disorders.

Dr. A. E. Prince, of Springfield, Ill., read a paper on *Section and Exsection of the Rectus Muscle in Case of Paralysis, for Cosmetic Purposes.* He advocated the division of the muscle or exsection of a greater or less portion of the muscle in cases of paralysis in which an advancement was not indicated. His experience is that all attempts at correcting the deformity of confirmed paralysis of the rectus will be failure, unless the muscle is weakened to correspond with the paralyzed muscle.

The following indications for the operation were given:

1. Permanent atrophy or paralysis.
2. Irrecoverable loss of either rectus through accidental section of the muscle back of its capsular perforation.
3. Extreme over-correction of long-standing following tenotomy, with excessive laceration of the capsule, permitting the retraction of the tendon back of the equatorial meridian, whence, owing to atrophy or adhesions, it cannot be successfully advanced.
4. Irrecoverable traumatic dislocation of the rectus.

The author introduced a brief description of his operation for advancement of the paretic rectus, to be used in connection with section of the antagonizing muscle.

Conclusions: 1. In the case of complete paralysis of either rectus, the exsection of the opposing muscle will enable the eye to be retained in the straight position, without motion in that meridian.

2. In the case of retraction of either rectus muscle into the orbit, under conditions rendering its advancement impossible, an equalization of the deviating power is to be obtained through section of its capsular attachment, following which, excursions in that meridian will be restored to an extent varying between twenty and fifty degrees.

3. In cases of paralysis, or retraction of either rectus, the operation of section or exsection of its antagonist has not been observed to develop or increase pre-existing exophthalmos to any marked degree.

The Present State of Our Knowledge Concerning Socalled Partial or Graduated Tenotomies and the Heterophorias. Dr. J. E. Colburn, of Chicago, read a paper on this subject.

The literature of the subject is extensive and the reports of cases and results of operations too voluminous to even give a brief outline of the most important work. He gave his conclusions after reviewing the subject.

A small group of men, some of them with extensive experience, condemn the operation as needless, harmful and unsurgical. Another group, and still a smaller one, consider it the only cure for heterophoria.

A large group of men of most conservative habits of thought, voice the following conclusions:

1st. No person should have a tenotomy performed solely because he is the subject of heterophoria.

2d. Very slight degrees should be corrected where troublesome symptoms exist which may be due to the too great use of nervous force on co-ordinating the eyes.

3d. Other means should be resorted to before trying tenotomy, but *unnecessary delay should be avoided.*

4th. Tenotomies should be performed under cocaine.

5th. Injudiciously selected cases, when the operation is properly performed, the average results will be quite as satisfactory as the results of most other surgical operations.

It is a mistake to deny that any good can come of a graduated tenotomy. It is always a mistake to claim that all of the ills that flesh is heir to are to be cured by cutting the muscles of the eye.

Others ignore the subject entirely, professing to know nothing about it, and to consider it as unimportant.

Dr. Colburn's opinion is that graduated tenotomy can be so done as to correct a true heterophoria without in any way interfering with the range or the nicety of adjustment of the eye, but rather to correct its error and produce orthophoria. The opponents of the operation give no valid reasons why it should not be performed. The uncertainty of the results of prism drill or ocular gymnastics, the loss of time and the danger from relapse render the physical culture treatment, in cases of true heterophoria, unreliable. Correction with prisms may answer the purpose in certain cases, but the error must be of low degree, and unless the patient has an error of refraction, necessitates the use of glasses which otherwise may not be required.

Dr. Colburn's experience is in accord with that of Hotz, Stevens, Standish, Webster, Savage and others that operative treatment is the only cure for certain cases of heterophoria and its dependent symptoms, and that it should be resorted to as soon as the condition of structural imbalance is determined.

Discussion of papers by Drs. Prince and Colburn. Dr. Dudley S. Reynolds, of Louisville, said, if he was not mistaken, he did the first tenotomy for the relief of cyclophoria that was ever done. An account of it was published in the *American Practitioner* for November, 1873. It was an exceptional case. He had not observed such another one. Cyclophoria of slight degree is constantly found, but in his experience he has not seen any other case that seemed to demand operative interference, and when he hears of a cylinder being set at 10, 70 or 100 degrees, he has in mind at once some suspicion that the apparent cyclophoria might readily be overcome by an attempt to have the patient use short cylinders, set at 90 or 100 degrees, but especially is this the case where the deviation approximates the meridian of 90 degrees, which is much more easily accomplished than where it approximates the horizontal meridian.

Graduated tenotomy in esophoria, exophoria, and soforth, has been very much abused, but it has a limited field of application. For nearly twenty years he has been practicing a shortening of the capsule over the tendon of the weak muscle; in preference to cutting any of the fibers of the stronger one, he cuts out an elliptical piece or fold in the capsule, directly over the insertion of the tendon of the weak muscle, and unites it by means of three silk sutures, and he can correct 10° degrees of lateral deviation either outward or inward by this operation. When this shortening of the capsule is done, the irritation of the operation stimulates the fibers of the weak muscle *first*, and, *second*, the necessity for increased action is diminished by shortening the capsule of that side, thus giving it less work to do while it is being stimulated, and the opposing capsule does not manifest a disposition to overcome it in a great number of instances. He has had a few failures, but they are very exceptional where 10 degrees or less of outward or inward deviation exists.

Dr. Edward Jackson, of Denver, Col., said the paper of Dr. Prince was one of real practical importance. There were a certain number of these cases who had consulted one oculist after another without getting relief. To what extent is it possible by crippling a muscle to balance one that is necessarily crippled, and therefore at a disadvantage in its influence on the eye? The speaker mentioned a class of cases of complete paralysis of the muscle. He referred to cases of complete oculomotor paralysis following attacks of periodic paralysis. On one occasion several years ago he enucleated an eye that still had some perception of light, but was displaced several millimetres forward, and had turned out until the cornea was habitually pushed behind the outer canthus. He did not see any reason why such a condition could not be prevented by the exsection of the external rectus, possibly combined with some interference with the superior oblique. Of course, those are the two muscles that retain their power. They act in very much the same direction. There was more divergence than he had seen in any case of oculomotor paralysis of the ordinary kind, possibly because the periodic oculomotor paralysis begins usually in early life, and possibly from some cause connected with its essential nature which ophthalmologists do not know very much about yet, but he thinks that the exsection of the external rectus probably combined with an operation on the superior oblique might be of great benefit. It is possible this can only be demonstrated by trial. These cases are so rare that it is justifiable to mention this operation, so that anyone who may meet with an extreme case might try it.

He said we were having a good deal of experience in the transplantation of other muscles; even the making of the superior rectus take the place of the levator of the upper lid, as Motais' operation, has given very favorable results.

He suggested that possibly the superior oblique could be so attached to the eyeball; instead of aiding the external rectus to make the eye worse, it would have some influence in opposing it. It would require that the muscle be displaced and pulled back for some distance, but he believes it is possible to so attach it to the eyeball rather than turn the eye out.

Dr. F. C. Hotz, of Chicago, said that the more the question of heterophoria was studied and the legitimate way of relieving it, the more he thought ophthalmologists were getting into deep water and were puzzled. He was reminded of that fact by the remarks of Dr. Reynolds regarding weak and strong muscles. It was difficult to decide frequently whether one muscle was weak or the other (opposing) muscle too strong. The strength is usually measured by the capability of the muscles to overcome prisms. If, in a case of esophoria, one could not overcome the abducting prism, or an abducting prism of only a few degrees, the muscle is regarded as weak. He asked, is one justified in accusing that muscle of weakness? If there is esophoria, it means an adducted position of the eyeball; the externus has to rotate the eyeball first into immediate position before it can abduct it. It has to spend a good deal of its power to turn the eye straight before it can turn it at divergence. Again, take a prism of two degrees; that prism must express the full abducting action of the muscle, and so in divergence, measuring the convergence of the eye by prisms, base out, in many cases he was unable to determine whether he had to deal with a muscle that is too strong or one that is too weak, and whether to advance the externus in case of esophoria, or to perform a graduated tenotomy of the internus. In one class of cases he thought ophthalmologists could come to an understanding that the tension of the internus is rather too much, and in those cases in which the distant measures show a slight degree of esophoria of say 4 to 6 degrees, and at reading distance that esophoria is decidedly increased, as he has seen in cases up to 16, and under such conditions, when the interni are called into action to converge towards the reading point, and esophoria shows an increase instead of a decrease, he thinks it is right to regard the case as one of abnormal tension of the interni, and one can safely perform a graduated tenotomy of that muscle. As a rule, he hesitates always to weaken the interni, and prefers in such cases of esophoria, unless tension is much increased, to advance the externus for the correction of the esophoria.

He had seen a great many cases of esophoria, and while the correction of the existing error of refraction gave relief, it did not change the existing esophoria. It was known that in many cases of hypermetropia the apparent esophoria disappeared totally or partly under the correction of the hypermetropia; but he had seen time and again cases in which esophoria of marked degree had existed or persisted after the correction of the ametropia, and glasses relieved the patients, or correction of the ametropia afforded relief, showing that esophoria played no role in the distress.

Dr. A. E. Bulson, of Fort Wayne, Ind., believes that many ophthalmologists have been led astray by the very flattering results of graduated tenotomy reported by some men who have become famous as exponents of this particular method of operating. He has seen some very disastrous results following graduated tenotomy done by good men. He had in mind a patient operated on in New York City, who reported that she had had six graduated tenotomies, and who frankly said that she was worse after all of these than she was before she was operated on. Some of his professional friends had reported similar experiences. He believes in a good many of these cases, particularly those instances where patients have been operated upon by men who have taken up this fad, he might be pardoned for calling it such, that an error had arisen largely through inability to properly correct the ametropia. He thinks in many of these cases a painstaking examination, conducted for a period of time sufficiently long to warrant an absolutely correct adjustment of the ametropia, under the full effects of a cycloplegic, will in many instances obviate many of the discomforts arising from what perhaps has been diagnosed as arising from hyperphoria or some of the other insufficiencies that are usually operated on by graduated tenotomy. He had seen so many good results following careful correction, after prolonged examination for the purpose of searching for the minutest errors, that he came to look upon some graduated tenotomies as unnecessary.

He expressed himself in favor of the method referred to by Dr. Reynolds, and which Dr. Fox mentioned in a recent article—that is, of taking out an elliptical section of the capsule and placing stitches in it. He believes that it could be used in the manner directed by Dr. Reynolds with a great deal of success, particularly in cases which have a moderate amount of error. Dr. Fox employs it in the correction of divergent strabismus, performing a tenotomy upon the external rectus and a resection of the capsule on the inner side, in this way increasing the effect of his operation. He believes that in well selected cases this will answer a useful purpose. He doubts very much whether we have too strong a muscle in those cases in which there is a practical parallelism of the eyes, and for that reason he thinks it is more rational, if possible, to strengthen the opposing muscle rather than to cripple a muscle which is apparently too strong.

Dr. George F. Suker, of Chicago, fully agreed with what Dr. Bulson had said, saying that ophthalmologists had undoubtedly forgotten the relation existing between the amount of force necessary to maintain convergence and accommodation in cases that possess esophoria or hyperphoria, even under complete and thorough mydriasis and prolonged examination. If the entire amount of error is corrected, at times one did not get relief of the hyperphoria, exophoria or esophoria, because there did not seem to be a corresponding relation existing between the correction and inherent amount of accommodation and convergence employed in those cases.

As far as graduated tenotomy is concerned, he does not believe in it excepting in extreme instances.

Dr. Prince, in closing the discussion, called attention to the importance of being sure in making exsection to correct paralysis of the opposing muscle; but if the case is one of permanent and irrecoverable paralysis, his experience leads him to believe that one is absolutely satisfied that he has done a patient great good by making complete exsection. On the other hand, if there was only partial paralysis, which is associated with a considerable degree of abduction or adduction, the partially paralyzed muscle may have some force left, and thus give over-correction.

He has had one case in an experience of fifteen years where, after making exsection and getting a temporary satisfactory result, the paralysis was recovered from, showing that this diagnosis was not correct as to the fact that the eye was permanently and irrecoverably paralyzed, and that gave him an over-correction of the other side, necessitating the exsection of both muscles. In the first case, he had a paralyzed muscle and corrected it; in the second case he had a paralyzed muscle of his own production, which was corrected by the exsection of the opposing muscle. He had never had a case of exophthalmos following the operation. Exsection of the contracted muscle is not prone to produce any more exophthalmos than the patient had before the operation. At any rate, in no case will the exophthalmos be increased by the operation of exsection. He believes there is a field for the operation of exsection of the opposing muscle for irrecoverable paralysis which has not been worked, and he hoped ophthalmologists would take it up and try it.

Dr. Colburn, in closing the discussion, agreed with Dr. Reynolds that the advancement of the capsule, whether done by his (Reynolds') method or that of Dr. Fox, is of great value, and in cases of permanent paralysis should be employed instead of a tenotomy. He said the determination of the weak or strong muscle is always annoying. By observing the attitude of the patient in the use of his eyes, when not apparently under one's observation, would lead him to determine which muscle to attack, and whether to do an advancement or a tenotomy.

Dr. Derrick T. Vail, of Cincinnati, Ohio, reported *A Case of Sympathetic Ophthalmia, with Complete Recovery of Both Eyes.*

The principal object of this paper, aside from the case which was reported in detail, was to lay especial stress upon the value of the one great therapeutic agent—total darkness and complete rest for the retina and accommodation in the treatment of sympathetic ophthalmia and allied affections of the eye. After referring to the literature of the subject, and narrating his case, Dr. Vail concluded that sympathetic ophthalmitis occurring in young persons is often not so violent nor so fatal to the integrity of the sight as the same disease in adults; that if no foreign body has remained in the eyeball it is often wise to watch and wait; that the rational treatment is complete rest of the retina and accommodation, which can only be brought about by total darkness.

Discussion. Dr. A. Alt, of St. Louis, said the essayist was to be congratulated on the excellent result obtained, and whether his particular management of the case was the only reason for the good result or not he did not know. He doubted whether keeping the patient in bed, as Dr. Vail did in this case, had the beneficial effect that the essayist thought.

As to the excellent results following the use of salicylate of sodium in cases of sympathetic ophthalmia, since the report of Gifford he had tried it in one case in which there was cataract formation when he first saw the patient, still all inflammatory symptoms had disappeared and the eye had been quiet for months. Now he was waiting for the time to come when he could extract the lens or to bore a hole through it, whichever would be deemed practicable at the time. He wanted to take this occasion to add his testimony to the value and usefulness of large doses of salicylate of sodium in cases of sympathetic ophthalmia.

Dr. Vail, in closing the discussion, said that in consulting *Knapp's Archives* he was able to find a case of complete recovery of one eye and partial recovery of the other, but in ransacking the literature he had not been able to find a case of absolute recovery in both eyes. There may be such cases reported, but he had not been able to find them. According to Randolph, of Baltimore, nineteen cases of sympathetic ophthalmia have been reported as having been recovered from, but this author does not state whether the recovery is from one or from both eyes.

Dr. A. Alt, of St. Louis, Mo., gave a lantern lecture on *Epithelial Intraocular Tumors.*

Dr. Dudley S. Reynolds, of Louisville, read a paper on *Toxic Amblyopia, reporting a case of nearly total blindness, the result of drinking essence of cinnamon; a typical case of autotoxemia; and four cases of tobacco amblyopia in persons who have never taken alcohol.*

Case 1.—J. H. P., in company with two other persons, indulged in a debauch, each of them drinking about twelve bottles of essence of cinnamon, the bottles containing near three ounces, amounting in all to more than one pint of the essence. Next morning all three of the persons were in a profound stupor, with dilated pupils and stertorous breathing. The other two died without recovering consciousness, one during that night, the other the following day at noon. P. vomited during the entire night following the debauch and all the next day. He had temperature of 105° F., pulse 150, difficult to count, breathing so irregular it was not counted. He remained in bed for three weeks, having at times short intervals of consciousness, during which he complained of being entirely blind. During all this time he occasionally vomited bloody mucus and small quantities of green bile. He complained constantly of pain in the head, with cramping in the stomach and legs. With gradual recovery of general health, his sight did not improve. Three and a half months after the spree Dr. Reynolds found him with nearly obliterated retinal arteries, large veins, extremely pale, ashy colored discs, with steamy opacity extending into the retina. His field of perception of white, on a black background, was extremely narrow, and limited to the nasal side, in the right eye. Under favorable light he counted fingers at 11 inches distant. He could not distinguish any of Snellen's test type. The left eye had a much wider field of perception, lying chiefly to the nasal side of the disc. He could count fingers in a favorable light at 4 feet, 9 the disc. He could count fingers in a favorable light at 4 feet, 9 inches, but singularly enough, he was unable to distinguish any of the test type at any distance. His capacity for recognizing form of objects seemed totally obliterated. For example, he could not recognize the hand with the right eye, excepting as a dark object. He could distinguish one finger, but could not distinguish two; the shadow seemed larger when more fingers were raised. Just how much importance to attribute to the cinnamon, and how much to the alcohol, is difficult to determine. The pupils were sluggish, about 3 millimeters in diameter, and responded imperfectly to homatropin. There were apparently no disturbances in the movements of the ocular muscles. He had not been in the habit of taking liquor and had never used tobacco.

The history of acute alcoholic poisoning does not show such permanent and disastrous results. The blotting out of the temporal side of the field in the right eye, and the almost entire extinction of of it in the left, would be difficult to explain. The irregularity of peripheral contraction of the field is likewise not common to alcoholic poisoning. Dr. Reynolds believes that the cinnamon was, in this case, the chief toxic agent.

From the examination of the patient, it is quite impossible to know if central scotoma existed at any time. He has no color perception. Strychnine has proved unavailing. The evidences of extensive neuro-retinitis are distinct.

Case 2.—Mrs. E., aged 30, had been under the treatment of several eminent specialists for optic neuritis. She could distinguish with the right eye $\frac{6}{\mathrm{LX}}$ Snellen, and with the left eye none of the test type at any distance. Perimetry showed large central incomplete scotoma in the left eye, and smaller incomplete scotoma in the right eye. Ophthalmoscopic examination disclosed hyperæmia of both discs, without other abnormal appearances. She was pale, thin, with feeble pulse, mottled complexion. She suffered with a sense of oppression on eating; had no appetite, and could not remember when her bowels moved without taking medicine. She did not drink water, and had recently abandoned coffee and tea on account of indigestion. She had been recommended to adopt a milk diet, but had been unable to do so. She was exceedingly feeble and suffered with insomnia. Twelve ounces of citrate of magnesia failing to produce any result, a grain of calomel, with one-half grain each of podophyllin and aloin cleared the alimentary tract. She afterward took one-half ounce of phosphate of sodium in one pint of water on arising in the morning. She was denied solid food and required to take one-half pint of fluid nourishment every two hours during the day, followed by 15 minims of tincture of nux vomica in one-half pint of water at each dose. She was required to have a plunge bath every morning and every evening, and an occasional dose of quinine, 10 grains at night. At first she could not sleep, and was required to take a quart of malted milk, warm, at 9 p. m. This promptly relieved the insomnia, and she went on improving until June 28th, when, after correcting hypermetropic refraction, she read $\frac{6}{\mathrm{IX}+}$ with the right eye and $\frac{6}{\mathrm{XVIII}}$ with the left. She continued to improve until full restoration of normal acuity of perception exists in both eyes. She is in robust health, having gained more than fifty pounds in weight, and enjoys perfectly comfortable vision.

Dr. Reynolds has had many similar experiences, and selected this as the best representative of a large class of patients, mostly women.

Case 3.—B. C. L., aged 46. A fine robust-looking man, a traveling salesman. Careful testing showed that with +0.25c ax. 90° sight $= \frac{6}{\mathrm{XVIII}}$ in the right eye, and with the same correction, sight $= \frac{6}{\mathrm{XII}}$ in the left eye. Ophthalmoscopic examination showed pale discs only. Perimetry disclosed ring-scotoma, incomplete in the right eye; incomplete in the left, with peripheral contraction in both fields, with remarkably enlarged and irregular blind spots corresponding to the discs. Mr. L. had no bad habits, excepting that he smoked almost continuously. The nature of his amblyopia being explained to him, he at once abandoned tobacco, and was given pills of asafœtida and nux vomica (¼ grain to 3 grains), one pill to be taken before each meal and at bedtime. On the 6th of April, re-examination showed slight improvement in visual acuity in the right eye, while vision in the left rose to $\frac{6}{\mathrm{VI}-}$. Further improvement has resulted, until he now sees $\frac{6}{\mathrm{IX}}$ Snellin with the right eye.

Case 4.—J. R. P., aged 27, insurance agent, complained of indistinct vision in reading and of great difficulty in adding up columns of figures. Under cycloplegia, hyperopic astigmatism in both eyes was found, correcting which he saw $\frac{6}{\mathrm{VI}+}$ with the right eye and $\frac{6}{\mathrm{VI}-}$ with the left. A fine film of smoky haziness seemed to hover around the center of objects looked at. In looking at a long word he could not see the whole word distinctly at one time. The field in both eyes shows great contraction of the periphery. Incomplete scotoma surrounded the central field. The blind spots corresponding to the papillæ were enormously enlarged and of irregular outline. The ophthalmoscope showed pale discs only. He had been an habitual cigarette smoker for the past ten years. Had never used alcholics, nor tobacco in any other form. Abandoning the habit gave him little or no trouble, and his field, he thinks, has entirely cleared up.

Case 5.—J. J. E., aged 29, train dispatcher, had indistinct vision, with difficulty in reading at night. Testing refraction showed emmetropia, with sight $= \frac{6}{\mathrm{XII}}$ in the right eye and $\frac{6}{\mathrm{XVIII}}$ in the left. Peripheral contraction of the field in the right eye was much greater than in the left. Incomplete ring-scotoma exists in both eyes, completely encircling the center of the field. He was an habitual smoker, but had never used liquors of any kind. Abandoning tobacco has, without the aid of drugs, entirely relieved the right eye and he had nearly normal acuity of perception in the left eye, after a lapse of six weeks.

Case 6.—C. A. W., aged 26, clerk in Adams' Express office. In good general health; had never used alcoholics. He had noticed for the past six months a gradually increasing film near the center of his field of vision, which greatly annoyed him, especially at night. He had normal acuity of perception in each eye, with irregular peripheral contraction of the field, and incomplete ring-scotoma. He abandoned tobacco, and in two months has entirely recovered.

In cases 5 and 6, it will be observed that the same abnormal conditions of the papillæ were observed. There were no ophthalmoscopic signs.

Dr. J. O. Stillson, of Indianapolis, Ind., read a paper entitled *Bleaching, or Distinct Pallor of the Temporal Segment, or Papillo-Macular Bundle of Optic Nerve Fibers, Due to Other Causes Than Tobacco and Alcohol.* The author said that in an article on "Toxic Amblyopia," published in THE OPHTHALMIC RECORD, October, 1899, he made mention of the fact that a certain class of cases may be found wherein the functional signs and objective symptoms so closely resemble that disease that one would sometimes be justified in disputing the word of honor of an otherwise worthy patient and charging to the account of some vicious habit the resulting decrease of visual acuity, instead of searching for the cause in the physical rather than in the moral makeup of the patient.

In the paper referred to the author says:

"Some of these cases presented well pronounced pallor of the nerve head on the side next to the macula lutea, and a few among women resembled markedly, but had to be excluded from tobacco blindness, because of the known absence of this factor, the writer being convinced at that time that this disease is far more prevalent than has heretofore been held, and that functional disturbances of vision, in one or both eyes, may be due to the introduction into the circulation of toxic agents other than tobacco and alcohol; that the two great agents—whisky and tobacco—substances which produce at all times more or less disturbance in the general circulation, while they have been accredited with this malady either together or alone, yet are not wholly to blame, but other agents may be found which will produce like conditions temporarily, and even permanently, and that some of our best observers, notably Wood, Sachs, de Schweinitz, Knapp and others have met with cases due to various drugs—e. g., lead in painters, stramonium, which is found in asthma cigarettes, quinine in excessive doses, etc., *and that it is highly probable that certain elements existing in the system under certain depraved conditions produce auto-intoxication (diabetes, lithiasis, sepsis, etc.), as well as certain chemical combinations occurring in the stomach or intestines under analogous conditions, either alone or combined with elements of tissue waste, must be recognized as factors in bringing about disturbances in the visual field, and that optic nerve changes may occur characteristic of this condition, both in the acute and chronic form."*

In the following autumn a case came under the observation of the writer which presented some peculiar features not before seen. It had had every feature objectively of retrobulbar toxic amblyopia, with none of the elements of history justifying this diagnosis other than the subjective symptoms peculiar to diminished visual acuity, scotomata and pallor of the temporal cones, and so far as could be seen fairly good circulation in the retinal vessels, and otherwise normal fundi.

Miss Kate M., nurse, aged 35, slightly anæmic, neurasthenic, but otherwise uncomplaining as to general health, menstrual functions not disturbed, has for the past two years been engaged in nursing an aged lady, who is quite feeble and a great care and tax on her strength. Her sleep for the past year has been much disturbed; has done much reading at night. On account of her gradual failure of sight, which has been noticed for the last four or five months, she was of the opinion that her refraction required correction, and was surprised that glasses did not at once relieve the difficulty. Upon ophthalmoscopic examination the temporal sides of both optic nerve disks showed well marked pallor; this condition was somewhat more marked in the right eye than in the left. The perimeter showed central scotomata for colors red and green, and there was symmetrical contraction of both fields for form. She was not in the habit of taking narcotics or hypnotics in any form. No alcoholism could for a moment be entertained, and of course no tobacco history. At first he was led to hope that it might turn out to be hysterical in origin, but this had to be also abandoned for the reason that she showed no signs of anything of the kind. There was in her make-up, however, the indications of a run down condition of health, which he finally attributed to her work. She was put upon treatment, ordered baths and given alterative doses of sodium iodide, with an occasional saline.

but this treatment made but little effect on her visual trouble. This went on for several months. During the winter she disappeared from observation, but returned in the spring in practically the same condition as before, except possible slight decrease in visual acuity. Soon after this her patient died, and she went on a short vacation. Some months later she returned to Dr. Stillson and reported that after her vacation she had undergone an operation for appendicitis at the hands of a very reliable and trustworthy surgeon, who reported to her that he had found a pus cavity. She made a good recovery. The treatment was now resumed for her eye trouble, and she was given pilocarpine and strychnine, the latter in gradually increasing dosage until it was carried to the point of toleration. A dark room was advised, and her exercise, which consisted in walking and massage, was obtained at night. One thing he had observed about the pupils, that they had from the beginning been rather large and the pupillary reflexes were sluggish. Eserine was occasionally used in the eyes to produce myosis, and all attempts to use the eyes prohibited. This was kept up for something like six weeks. At the end of that time she began to improve in sight, and the pupils no longer required a myotic, but resumed their former activity and reaction to light. During the course of this last treatment she alternated at times in her habits of sleep; for a week or so her sleep would be obtained entirely in the daytime, and she would remain wakeful throughout the night; the next week she would switch around and sleep entirely at night. To avoid the unpleasantness of night wakefulness he allowed her to have company during the day and gave her medicine at this time, following it up at times with bromides in the evening, and in this way finally obtained good restful nights and cheerful days. The perimeter now began to show some improvement in the fields; the concentric contractions widened for form and the central scotomata faded, but the appearance of the papillo-macular segments was the last to return to normal. In fact, the last time he saw her he thought they still looked pale, though greatly improved. This patient went on to what she seemed to believe was a complete recovery. A year after this experience he met her one day in the city, and she reported that she was now entirely well. Her refraction had been corrected, at the first interview, long before the operation on the appendix, and she was using the same glasses, which were satisfactory to her.

He reported this case because it was very puzzling to him at the time, and he did not know what was the matter, unless it might have been toxicity due to sepsis. Her constipation, from which she had suffered before the operation, disappeared and the functions all resumed their natural order. Whether this could partly be attributed to the strychnia or not he is unable to say. Doubtless the prolonged rest after two years of strain and worry had much to do with the cure. As to the pallor of the nerve heads and their gradual recovery, he has also no other explanation to offer, but of the facts as stated above in the history of the case he was quite sure.

He observed the same phenomena in another case about a year ago in the person of a young lady who was a very ambitious college girl. She was run down in health and strength and on her way home for rest. He learned from her that her brother had been treated by a very reliable and eminent oculist of Washington for tobacco amblyopia, and that he had recovered upon the cessation of the use of the weed; but, as in her case there could be no tobacco, no alcohol, Dr. Stillson was led to believe that a mistake might occur from the physiological pallor common to two people in the same family, and that there might be some hereditary neurosis at the bottom of these cases, and he was quite anxious to have her return for further observation later, but she had not yet done so. She was a sufferer from chronic constipation. In this case the trouble was also bilateral, both nerves looking pale.

Discussion. Dr. Randolph Brunson, of Hot Springs, Ark., had read of a number of cases of toxic amblyopia brought about by drinking the essences of ginger and cinnamon, and in every case it was found that the essence was made with wood alcohol instead of pure alcohol. The symptoms that had been graphically described by the essayist were present in all of the cases. He recalled the case of a negro woman who was accustomed to periodical sprees. She went to a drug store one day and asked for alcohol. The druggist, not knowing what she wanted it for, gave her the ordinary Columbian spirits or wood alcohol. She took it home, and in four hours thereafter died. He thought the wood alcohol was the cause of the amblyopia in some of these cases, and not the essence of cinnamon.

Dr. H. V. Würdemann, of Milwaukee, Wis., thought that the cause of the sudden and complete blindness in the first case narrated by Dr. Reynolds was due to the ingestion of methylate alcohol rather than to crude alcohol. He had seen several of these cases, one which terminated fatally within twenty-four hours from the inhalation of Columbian spirits used in shellacing the interior of beer vats. He had also seen another case. There were likewise two cases at present in Chicago, one of which he had seen, in which total blindness was first produced by the inhalation of methylate alcohol in the same manner in shellacing the interior of beer vats. In this case there was a fictitious recovery, in that the patient was able to get about, but subsequently atrophy followed, the man becoming entirely blind; another so blind that he was unable to work, vision being reduced to the counting of fingers at two meters. He referred to other cases in the literature reported by Hiram Woods, Gifford, Brunson and others.

Dr. Edward Jackson, of Denver, Col., thought the poisoning by methylate alcohol is so definite and characteristic in its symptoms that one is just as much justified in making a diagnosis from the symptoms as he would be in a case of smallpox or measles from the symptoms manifested by those diseases. He recalled the first case that was reported in this country from the essence of Jamaica ginger by Dr. Archibald Thomson, of Philadelphia. He saw this case with Dr. Thomson, and soon found out it was quite common for the people to use the essence of Jamaica ginger in various prohibition localities, particularly where they could not get ordinary drinks. He thought there could be no question about the cause of the train of symptoms. Immediate recognition of the cause was important, because nearly all of the cases would sooner or later progress to complete blindness. He had seen one case of absolute blindness in one eye and barely light perception in the other in a soldier after a debauch with wood alcohol. There were a few cases, however, which, if promptly recognized, terminated in complete recovery.

Dr. J. J. Kyle, of Indianapolis, said that these cases took on a medico-legal aspect. For instance, a man is picked up unconscious on the street from the effect of methylate alcohol. Probably he is a little hilarious and is struck by a policeman, taken to the station-house: in a few days he is blind, or optic neuritis begins and subsequent atrophy takes place. Under such circumstances he thinks it is very essential to secure a very complete history of the cases coming under observation. Not long ago he was consulted by the chief surgeon of a large railroad and the assistant attorney, who asked him if optic nerve atrophy could be brought about by the administration of any drug. He thought these gentlemen had a case in mind when they asked the question. They probably might assume that this man was intoxicated, and by the injury received during a railway accident he became subsequently blind. Now, was the railway responsible or the man? He mentioned this case because he believes there is a field for future investigation from a medico-legal standpoint.

Dr. A. Alt, of St. Louis, stated that in a few cases he had seen of poisoning from fish and foul meat the patients presented similar symptoms to those which result from poisoning by wood alcohol at first, but the cases were not as grave in their nature, in that the patients do not die. However, the symptoms were very much alike.

Dr. Derrick T. Vail, of Cincinnati, had seen three cases of toxic amblyopia belonging to the same class, namely, quinine and alcohol mixed; quinine amblyopia in which quinine was taken with whisky, or in some compound in which there was quinine and whisky. He saw one case of cinnamon poisoning when the attack began, and considered it a rare opportunity to study this condition. He saw the patient twenty-four hours after the onset of the symptoms; patient was then just recovering from absolute deafness, was entirely blind and was crazy. He did not know where he was. He had imbibed large quantities of whisky and quinine, presumably obtained from a corner drug-store for a cold. This case occurred in the practice of Dr. Holmes, with whom he was associated. The case was very singular to him on account of this fact, namely, that although he saw the patient within forty-eight hours after he began taking the crude nostrum of quinine and whisky, yet so soon did the most marked atrophy of the optic nerve and narrowing of the vessels take place that he could not believe but what the man had chronic atrophy of the optic disc and had been partially blind for months and even years. The arteries emerging from the disc were reduced to the narrowest lines, as seen in retinitis pigmentosa, the optic disc being quite atrophic, the patient being unable to tell day from night, and entirely blind in both eyes.

Dr. Reynolds, in closing the discussion on his part, said that Dr. Brunson, in considering his first case a typical one of wood alcohol poisoning, made no mention of central scotoma, always present when the field could be taken at a time which would disclose it. He (Brunson) omitted also to mention the fact that in peripheral narrowing of the field in alcohol poisoning contraction is very nearly symmetrical. In Dr. Reynolds' case the temporal portion of the field was absolutely blotted out in the right eye, only a small portion in the nasal side where the patient was able to count fingers at eleven inches, whilst in the left eye the contraction was very irregular, with no evidence of central scotoma. He did not think his case conformed so completely to typical cases of wood alcohol poisoning as Dr. Jackson and others thought. Of course, a patient who can barely count fingers, who sees white on the background and has no color perception, it might be said would present some difficulties in determining a central scotoma; if it were a case of alcohol poisoning the scotoma would be complete; that is to say, it would be absolutely dark, entire absence of perception of light in the scotomatous portion, and not like tobacco amblyopia, where the scotoma was incomplete. This case lacking symmetrical peripheral contraction and evidently lacking central scotoma differed in all essential respects, he thought, from typical cases of wood alcohol poisoning as he understood them.

Dr. Stillson, in closing the discussion, said he did not know what the experience of others had been in this field, but he had either been unfortunate in running across a number of these cases, or else his judgment had been in error, but certainly he had seen such cases in whom alcohol must be ruled out. He had not had any case of blindness following the ingestion of wood alcohol in his private practice, but he has had a number of cases of blindness from alcohol; that is, whisky, etc. He recalled one marked case where alcohol and tobacco constituted, in his judgment, the source of the amblyopia.

Dr. George F. Suker, of Chicago, read a paper entitled *Is the Dislocation of the Lens Into the Vitreous Ever Justifiable?*

In briefly summing up the most salient points of his paper, the author tabulated them as follows:

1. The percentage of failures in the class of cases in which depression can be performed is no larger, on the contrary less, than in the same cases operated upon by extraction.
2. Do not depress a lens in cases with choroiditis or retinitis.
3. Consider depression in all cases where one eye has been lost by extraction and its fellow must be operated upon.
4. Depressions of the lens must not be indiscriminately performed, but only in such cases where the contraindications of extraction outweigh its own objections.

Finally, the writer considers reclination of the lens as an exceptional procedure, and can only regard it as unquestionably indicated in such a class of cases as he had alluded to, when the general constitution of the patient, or the previous experience with the fellow eye, unhesitatingly points to a failure if the extraction method were resorted to. It should be rarely performed, for it is only in rare instances that suitable cases present themselves. In any given case one should weigh carefully the *pros* and *cons* of either operation, and if the balance is in favor of one or the other, select that one, be it reclination or extraction. He said it is largely a matter of good judgment and discretion, and therefore one should have no cause to find fault with any physician who exercises his prerogative as such, and thus practices *secundem artem*, though he does resort to a method at present cast in oblivion, and only receives mention in modern textbooks as an historical operation.

Discussion. Dr. A. Alt, of St. Louis, took exception to one class of cases on which the essayist laid stress, and that is, when one eye had been operated upon unsuccessfully for cataract, one should earnestly consider whether it is not better to perform reclination or depression in the second eye. He recalled a number of cases where one eye had been lost, and he had made extraction with good success, and without the least trouble in the other eye. As to the other class of cases, it was wiser to make depression than to do extraction. In old and enfeebled persons, who wanted to enjoy their sight for a few months more to see their children before they are gathered to their forefathers, he thought reclination was justifiable.

Dr. Edward Jackson, of Denver, thought it would be rash to answer the question in the title of the paper in the negative. He thought he had never seen a case in which he would, if he had it to do over again, resort to reclination. Many cases of dislocated lens, whether traumatic or congenital, or in the rather rare cases where dislocation of the lens occurs apparently spontaneously, or after a slight injury, took place in old people. In the cases he had met with and had watched for a year or two, the eyes did badly. There was secondary glaucoma or a chronic low grade of inflammation.

He recalled a case in which one eye was lost and in which an attempt had been made on the other eye, the operation having been abandoned after making a linear incision. In this case he did an extraction and got very good vision with no complications.

Dr. Dudley S. Reynolds, of Louisville, said he remembered Von Graefe's publication which announced that very few cases of reclination of cataract had been reported in which there was good vision beyond two years, and if he remembered correctly, Graefe fixed five years as the limit of useful vision in any case known to him. Other students of statistics since that time had greatly extended the field of observation without increasing the period of time that elapses after what is called a successful reclination before blindness ensues from intraocular changes.

He had a remarkable case about ten years ago in an intelligent young woman, 30 years of age, married, mother of three or four children, who had a diffuse keratitis in the right eye, followed eventually by retinal complications and shrinkage of the optic disc, with extinction of sight in the right eye. She was playing with one of her children, leaning over on her elbow on the side of the bed, toying with the child in bed, when the little fellow, perhaps 2 years old, struck his mother with his fist in the left eye, the right one having already been lost. The eye became inflamed. A surgeon was called and attempted iridectomy. He did not try to use Jaeger's keratome, and when he placed the point of the instrument to make the puncture the eye was suddenly turned up and he drove the instrument straight in, cutting off the suspensory ligament and also cutting off the periphery of the iris. The vitreous humor escaped; he became alarmed and closed the eye. Dr. Reynolds was sent for, the distance being more than forty miles to Louisville, to see the case in consultation with the family physician, and with the gentleman who had done the unfortunate operation. He counseled rest in bed; directed the use of muriate of pilocarpine, followed by salicylate of sodium, both largely diluted with water, a fluid diet, etc., exclusion of light from the eye, and the patient went on in this way and made a perfectly satisfactory recovery, excepting as to vision. When the eye was uncovered the lens was depressed. The rent in the suspensory ligament of the lens was so great at the upper edge as to allow the lens to be pushed downward, and by getting the head down and looking in a position upward the patient got much better vision than through the dislocated and partially opaque lens. He hesitated about extracting the lens, and could not assure the patient of strong probability of success of this operation that she wanted, and her husband took her to Cincinnati, where an operation was declined. Patient afterward went to Philadelphia, also to New York, and in the meantime two years had elapsed and everybody had advised against the operation. She then again consulted Dr. Reynolds and implored him to operate. He studied the case with a great deal of care and deliberation, and finally decided that while he felt perfectly sure of his ability to get it out without serious risk, yet he was in grave doubt as to how much improvement in sight she would have, on account of pathological changes in the choroid. The lens was not extracted. Patient was now able to read long primer type, and has gone on for several years without extraction of the lens.

Dr. O. A. Griffin, of Ann Arbor, Mich., read a paper entitled

Transient Astigmatism. Coincident with increasing strain of succeeding years and improved methods of examination, the emmetropia of Donders has given way to correction of smaller errors. In the practice of the author, drawn from the University of Michigan, small errors demand careful attention. Eighty-nine per cent of his ametropias are astigmatic, 0.25 D. or more. A sphere will improve vision in astigmatism up to one-half of the error. An induced transient astigmatism is not corrected. Variability of position of mires in ophthalmometry was shown to be due to accommodative efforts on part of the examiner, in the majority of cases, instead of to temporary changes in corneal curvatures. Variability in position of distinct line of astigmatic chart is accommodative on part of patient in presence of low degrees of incorrected astigmatism. Ophthalmometry is endorsed by the essayist. Skillful control of accommodation and knowledge of limitations of method are necessary.

Dr. C. L. Minor, of Springfield, Ohio, read a paper on *Refraction: Its Difficulties and How to Overcome Them.*

Dr. Randolph Brunson, of Hot Springs, Ark., read a paper on *Ocular Affections Secondary to Syphilis,* in which he said that of all diseases of the eye, syphilis is probably responsible for a greater number of ocular affections than any one disease known. Secondary syphilitic ulcers may occur on the eyelids from the breaking down of a gumma originating in the skin or in the subcutaneous tissue and cartilage. The most frequent location of the lesion is in the skin near the lid margin, or below the inner canthus, although it may occur on the conjunctival surface of the lid. The conjunctiva is very rarely affected primarily, but inflammation usually occurs when the iris and ciliary body are involved, the edema observed in these cases being caused by an obstruction of the return-flow of circulation. The author has seen one case of gumma of the conjunctiva in a man, 36 years of age, who had been infected six years previously. The lachrymal sac and duct are frequently invaded by syphilis through the nose. In all cases of structure of the lachrymal canal, due to syphilis, which had come under his notice, he had always been able to find the cause in the nose. Syphilitic rhinitis, both acute and chronic, is very common, and when there was great destruction of the nasal bones and membranes, dacryo-cystitis usually occurs, with varying severity. The iris and ciliary body are perhaps more often invaded by syphilis than any one part of the globe, and syphilis is frequently the common predisposing cause of iritis. About 70 per cent of all cases of iritis are caused by this disease. The author has found in examining the histories of 1,500 cases of syphilis, that iritis occurred in over 3 per cent of all cases. He mentioned a number of characteristic signs which enables one to recognize the etiology of the disease, the most conspicuous of which are the papules, small raised masses in the iris, usually not exceeding three in number, and generally located in the pupillary zone, but may be seen at the periphery of the anterior chamber, or elsewhere. Syphilitic cyclitis may be plastic, serous, or gummatous, and is almost invariably associated with iritis. The symptoms of this affection were detailed. He mentioned the symptomatology of syphilis of the ciliary body by quoting Galezowski at length. Interstitial keratitis had its origin in syphilis, and in perhaps 60 per cent or more of all cases of this variety of disease of the cornea it is hereditary. He had never seen a case caused by acquired syphilis, and believes the cases reported as such have simply been produced by iridochoroiditis, which has involved the deeper layer of the cornea.

Disseminated choroiditis is caused by syphilis in perhaps 80 per cent of all cases.

He then dwelt upon syphilitic chorio-retinitis, opacities of the vitreous, syphilitic retinitis, syphilitic hemorrhagic retinitis, and relapsing syphilitic central retinitis.

Discussion. Dr. A. Alt, of St. Louis, said he was a little surprised to hear Dr. Brunson make the statement that he had never seen a case of parenchymatous keratitis due to acquired syphilis. He was satisfied he had seen at least four such cases in adults due to acquired syphilis, and he knew of others that had been reported. In three cases the keratitis was one-sided.

Dr. Dudley S. Reynolds believes that no syphilized mother ever gave birth to a sound and perfectly pure-blooded child, no matter how perfectly she might appear to have been cured of it. As to Jonathan Hutchinson's great prize essay on some of the manifestations of inherited syphilis, he thought it was unfortunate he did not particularize this point. He believes that Hutchinson's teeth are peculiar to the second generation.

Dr. C. D. Wescott, of Chicago, said that ever since his pupillage in ophthalmology he has had a prejudice against hopelessly blind eyes, made so by traumatism or inflammation of the anterior segment of the globe. The fact that there is a well-known difference of opinion as to what we should recommend in such cases is his excuse for bringing up the subject.

As an illustration of what may happen in consequence of retaining an eye blind from traumatism, in spite of the fact that the eye is quiet, not shrunken, not painful, not tender, he recounted the following case: Going through the hospital one morning he saw a man, about 40 years of age, with a red eye. The appearance of the eye at once suggested the presence of sympathetic ophthalmitis. He glanced at the other eye and saw that the cornea was entirely opaque from leucoma adherens. He asked the man when that eye was injured. He said eleven years before, and gave an account of the usual acute, painful inflammation following such an injury, but added that for ten years the eye had been painless and never inflamed. The eye was not red at the time of the examination; it was not tender to the touch; it was not shrunken, and tension was normal. In the sympathizing eye there was double injection, cloudiness of the aqueous, swelling and cloudiness of the iris, with adhesions which could not be broken up with atropine; in other words, a well-marked irido-cyclitis, with the tenderness and pain. He told the patient that the injured eye must be removed at once, although he was fearful that he could not save the affected eye. Enucleation was done immediately; the affected eye was treated to the best of his ability, with rest in bed, fomentations, atropine, leeches, iodides, salicylates, etc., all to no avail. The eye went on to complete blindness. He showed a section of the enucleated blind eye, which showed at the time no evidence of acute inflammation, and the patient said the eye had not been red or tender or painful in the preceding ten years.

Shortly after this experience a medical student consulted him suffering from eye strain. An examination of one eye showed a moderate degree of astigmatism, which slightly reduced vision, and for which a correction was prescribed. The other eye was blind from an injury similar to the injury which destroyed the eye in the previous case. The eye was quiet, free from redness and tenderness, but soft and shrunken. His advice to the medical student, as it has been to all patients similarly afflicted, was to have the useless eye removed. As he could have the benefit of the advice of any number of good ophthalmologists, it was suggested to him that he consult anybody in Chicago with whose name he was familiar. He saw several local men, and only one advised him to have the eye removed. He was told that the eye might some time cause trouble in the other eye; that a glass eye would look better than the shrunken globe, and he would better have it out. The patient yielded to Dr. Wescott's advice, and the eye was removed. He has ever since used his remaining eye with much more comfort and ease than he had for years previously. However, that fact might be attributed to the accurate correction which was given for his astigmatism.

He brought these cases before the Association for the purpose of eliciting a discussion which he hoped would be free. He desired to know what is the practice of those present under such circumstances.

He thought they were all familiar with the discussion of this question before the British Medical Association in 1899, also with the paper by Dr. Ayres, of Cincinnati, before the American Ophthalmological Society in 1900. But it is evident that all were not agreed as to what is the best thing to recommend and to do in the case of hopelessly blind eyes, made so by traumatism and destructive inflammation of the anterior segment of the globe, when they are quiet and free from redness and tenderness. Ophthalmologists are all agreed as to what to advise in case one of these useless eyes becomes red and tender, the seat of irido-cyclitis. But he brought before the Association the first case as a demonstration of the fact that sympathetic inflammation may follow eleven years after an injury without any evidence of acute inflammation in the injured eye during all that period of time.

There is another class of blind eyes in regard to which there has been some question. Here is an example: A child, 4½ years of age, was brought to him because it had been discovered accidentally that the child was blind in one eye. Examination showed that the pupil was small; that there were posterior synechiæ; there was slight tenderness and slight reduction in the tension of the eyeball; there was no ciliary injection. It was impossible to get a full dilatation of the pupil after repeated applications of atropine, but a moderate dilatation was obtained, and looking in he saw a clear lens, except for the adhesions between the iris and the lens. He got a dirty gray reflex from the fundus. It was impossible to say definitely whether this was due to exudate in the vitreous, a detached retina or a tumor. But the eye was blind. It was a little bit soft; there was evidence of inflammation of the anterior segment of the globe. There was the reflex from the inside which suggested glioma. He strongly urged the parents to have the child's eye removed at once. They preferred not to have additional consultation, but thought over the matter, and finally came back because the child's eye was a little inflamed. After being urged again to have the eye removed, they consented. The speaker exhibited the specimen, which presented a peculiar condition, a detached retina, which also contained a small glioma, justifying the removal of the globe.

He exhibited another eye which was removed from an elderly patient who consulted him first in regard to glasses. At the examination he found that vision was low in one eye. The patient was a busy railroad official, and could not give the time for mydriatic, but was urged strongly to return soon for a more thorough examination, because the speaker found vision of $\frac{6}{22}$ in one eye, whereas he had 6-6 in the better one. The patient did not return until the glasses no longer served him, which was about two years. At the first examination ophthalmoscopic appearances, as seen through the small pupil, were unsatisfactory. There was a suggestion of cloudiness as he looked at the disc, nothing more. Two years later, the lens was found a little hazy, and there was a little more cloudiness of the disc. He was urged again to permit the use of a mydriatic and to have a more thorough examination made. Patient said to Dr. Wescott, "Please give me stronger glasses now, and I will come back tomorrow or as soon as I can for another examination." He did not return for another year, and then at the solicitation of the family physician, who noticed the lens was cataractous and crowded into the pupil. The lens was quite opaque; the anterior chamber shallow; no pain; no redness; tension + .1; no projection. He told the patient there was a suspicion of intraocular growth; that if there were a tumor, it was malignant, and the eye should be removed. After consulting the family physician, the patient consented to have the eye removed. Dr. Wescott then showed the eye, which presented one of those umbrella-shaped sarcomata of the choroid, already passing through the sclera, alongside the optic nerve.

The sequel of the story is the sad part. There was no recurrence of this tumor locally. In eighteen months the patient was ill, and in two years' time from the removal of the eye he was dead. At the post-mortem examination metastases were found in the liver and along the spinal column. Probably, if this man had consented to the use of a mydriatic at the first or second examination, the beginning of this growth might have been suspected, although that is questionable.

He simply reported the last two cases to bring out a discussion with regard to the removal of blind eyes in which one could not be positive as to the diagnosis.

Discussion. Dr. Eugene Smith, of Detroit, said that Dr. Wescott's treatment could be endorsed by everyone who had had much experience in such cases. There was no question in his mind about the propriety of removing old blind eyes, because one did not know at what moment trouble would arise. Marked inflammatory reaction, slow, insidious, might take place, producing trouble in the opposite eye from sympathetic trouble, and yet patients declined or disliked to have a blind eye removed. He looked upon a blind eye as a menace, and it was never safe until the eye was in the cabinet of the ophthalmologist.

Dr. A. Alt mentioned a paper by Dr. Ayres, saying that he had made a microscopical examination of one eye for Dr. Ayres, which he (Dr. Ayres) thought was absolutely free from inflammatory symptoms, and yet microscopical examination showed bone formation of long-standing, with marrow, also recent inflammation in spots, such as are seen in septic conditions, although there were no external manifestations of inflammation whatever. The eye was not at all in a chronic inflammatory state, but in a process of acute exacerbation by reason of a recent reinfection. He supposed ophthalmologists had seen a number of such cases, owing to a disinclination to remove such eyes for fear of doing some harm, yet examination shows that such an eye is really dangerous to the other eye.

Dr. George F. Suker, of Chicago, expressed himself as being opposed to the enucleation of eyes in young children unless there were very strong indications for their removal, and gave his reasons therefor.

Dr. H. V. Würdemann, of Milwaukee, Wis., read a paper on *Epicritic Remarks Upon Methods for Estimating the Economic Damage from Accidental Injuries to the Eyes.* The author refers to the work of Prof. Magnus, of Breslau, Germany, and his own essays upon Visual Economics, and takes up the following propositions: Earning ability is economically synonymous with visual earning ability for the majority of trades and professions. Injury to vision generally necessitates loss of earning powers. The economic value of vision is equivalent to the wages of the individual. After injuries involving loss of earning ability, the loss of wages may be reckoned from experience in examining large numbers of individuals, or the probable loss in any given case may be found by reckoning the percentage of damage to the normal function and applying this to the calculation of the probable pecuniary loss. A mathematical formula may be made for this purpose, in which the several factors comprising vision should be properly related, and the formula for working vision should be modified by the ability to use the eyes for gainful purposes, the whole forming a formula for the earning ability. By this means a percentage of the loss to the earning ability may be figured and this percentage applied to the probable wages and duration of working life in the individual who has received the accident. Damages to ambition, to hopes and plans cannot be considered. We must deal with the station in life, and expectation of wages and life which belongs to the individual at the time of the accident. Compensation for injuries from accidents to the eyes should be based upon the economic damage, modified by the present rulings of American courts in allowing an empiric amount for pain, suffering and mental anguish, and for philanthropic or punitive purposes, or for contributory negligence; the latter amounts being only of forensic importance. By the rules of Magnus and Würdemann, the economic damage may be calculated in a manner fair and just to all interested parties.

Discussion. Dr. Eugene Smith, of Detroit, said he had made the remark to the essayist that the loss of one eye did not necessarily interfere with the earning ability of the individual to the extent of 50 per cent. He said many of those present had friends, not clients, who have gone through life with an earning ability equal to anybody wth only one eye. He wished it to be distinctly understood that he was not finding fault with the paper, and he hoped every member of the Association would secure the book referred to by Dr. Würdemann, in order to protect himself against lawyers on the opposite side, who would make it hot for physicians if they were not prepared. He thought it was a difficult matter to compute the percentage of loss of earning ability where one eye alone is injured or is lost. He was free to maintain that a man's earning ability in almost any profession was equal to or very nearly as much with the one eye as it was with two. He made this statement based upon experience with others and with friends. He had known a great many persons who had lost one eye during infancy or youth who had gone through life with much better earning capacity than he had ever had with two good eyes.

Dr. Würdemann, in closing the discussion, said that earning ability was not synonymous with working ability. He thought that if any patient knew that any ophthalmologist present had only one eye it would materially affect his business. He knew an oculist of good standing to whom patients would not go because he wore a glass eye. On this account he lost a good deal of business, although he could doubtless see as well as anyone. If one employed a skilled workman to do a delicate piece of work, he would certainly give the preference to one with two good eyes, not to a workman with one eye. This was an important factor in working out mathematical formulæ, and the results of experience had shown the percentage to be under 50, the German Imperial Insurance Office allowing that for one eye, and until a few years ago he said they allowed 33 1-3 per cent for indemnity or annuity for the loss of one eye. If a man lost one eye, the damage to his earning ability, not to his working ability, ranged from 18 to 30 per cent.

SECTION ON OPHTHALMOLOGY.

COLLEGE OF PHYSICIANS OF PHILADELPHIA.

Meeting, April 15, 1902. Dr. William Thomson, Chairman, presiding.

Dr. Harold G. Goldberg exhibited (by invitation) a number of *Macroscopical Eye Specimens* mounted in glycerin jelly prepared by a modified formalin method. The formalin solution used, while sufficiently dilute to prevent clouding of the jelly, was still strong enough to render the mounting permanent in the hottest weather. The success of the method, he believes, is dependent upon the saturation of the tissues, previous to embedding, with dilute formalin solution, which, when in contact with the jelly already impregnated with formalin, adds to its resistant properties. In this way, he claims, a jelly may be prepared that in stock mass may be melted without difficulty in a water-bath, but after contact with the added formalin from the tissue is not affected by heat.

Discussions. Dr. Shumway spoke of the difficulty of preventing specimens preserved in glycerin jelly from being affected by the heat during summer, and believed that the method employed by Dr. Goldberg was superior to those now in use, and would tend to secure more permanent mountings in the future.

Drs. G. E. de Schweinitz and E. A. Shumway exhibited the *Edinger Projection Apparatus*, and demonstrated its value for teaching small classes of students by the aid of microscopic slides.

Discussion. Dr. Randall, while commending the excellence of the apparatus, called attention to the employment of the camera as arranged for photo-micrographic work for use in the same manner, either with sunlight or a lamp projecting the enlarged images upon the ground-glass. The simplest of apparatus can serve for such purposes or for low-power photography, a small box and pasteboard cone which will connect the microscope and the ground-glass being the sole requisites for successful work.

Dr. G. E. de Schweinitz described the following cases of *Congenital Defects in the Choroid of Somewhat Unusual Form and Situation,* and exhibited water-color sketches by Miss Washington illustrating the lesions.

1. Large bilateral congenital defects in the temporal region beyond the macula. The deficient areas were represented in the visual fields by scotomas, which were demonstrable not only by ordinary tests, but also by the small electric test-light with Sweet's perimeter.

2 Multiple congenital defects of the choroid. In the right eye there was a large oval coloboma in the usual situation, and between its upper edge, which was 2½ discs' diameter below the margin of the papilla, and the lower edge of the nerve-head, two smaller, nearly circular defects. In the left eye there was a circular defect, somewhat larger than the nerve-head, just below the inferior border.

3. A small, circumscribed defect of the choroid in the temporal region, below the macula, with a drawing of the fundus by Dr. Randall.

Dr. de Schweinitz also exhibited some drawings illustrating the usual varieties of *Inferior Conus.* The various theories of the formation of colobomas were briefly discussed, and the opinion expressed that in many instances intrauterine retino-choroidal disease best explained their existence. He referred to the fact, as a curious coincidence, that in a number of instances he had observed congenital anomalies of the eyes in patients, particularly women, who were typical hysteric subjects, and briefly recited the histories of some cases where this association had existed.

Discussion. Dr. Hansell described in detail a case of coloboma of the iris, ciliary body, and choroid in a boy, 16 years of age. No decided scotoma could be determined, because of the extremely low acuity of vision. He called attention to two points of difference between the ophthalmoscopic appearances in this and illustrative cases of the books, namely, the entire absence of a nerve-head, the position of the papilla being recognized only by the presence of the central vessels and the abrupt curving of their branches at the edges of the coloboma, demonstrating the more posterior plane of the colobomatous area.

In relation to non-developmental forms of choroidal defect, Dr.

Randall referred to one case seen in a stage of localized detachment of the retina to the nasal side, forming the ruptured flask-shaped vesicle such as v. Jaeger has depicted. Following the case for years, he was able to observe the total punched-out atrophy of the choroid underlying the lesion, and the formation of what can easily pass for a congenital coloboma at the nasal side of the disc. Many cases, such as the pigmented one shown by Dr. Schweinitz, will bear out the theory of a retinal nevus, and we must surely believe that there is a multiplicity of lesions which can give rise to the appearance in question, and account for the unusually placed forms which are thus infrequently seen.

Dr. Wm. Campbell Posey reported a case of *Unusual Choreiform Alterations in the Width of the Palpebral Fissure,* in a colored boy, 8 years of age, which were occasioned by clonic rhythmic contractions of the levator palpebræ muscles. He thought these contractions were of choreiform origin, although there were no other manifestations of chorea elsewhere. The Graefe lid sign and exophthalmos were absent. He stated, further, that he had seen the palpebral fissures widen independent of any action of the frontalis, when patients fix the finger in the ordinary cover-test at the near-point, the widening under these conditions being attributable to an associated stimulation of both internal recti and levator muscles.

Dr. C. A. Veasey read a paper upon *"Primary Syphilitic Optic Neuritis,"* recording two cases. The first, a man aged 45, complained of an aching pain in and behind the eyeballs, together with impaired vision, especially in the left eye. The symptoms had been present for two weeks, but had become much more marked a few days prior to the examination. V = R., $\frac{6}{9}$; **L** , $\frac{1}{100}$. Examination showed mucous patches and moderate skin eruption; normal pupillary reactions, and a moderate papillitis with but little exudate or involvement of the surrounding retina, and without hemorrhages in the right eye. In the left the swelling was marked. The patient had contracted syphilis three months before, and had been taking mercury irregularly. The field of vision for each eye showed marked concentric contraction, but no scotoma. Mercurial inunctions and rapidly increasing doses of potassium iodid were ordered, and in two months the neuritis had entirely subsided, the visual fields were normal and, V = R $\frac{6}{5}$; L., $\frac{6}{7½}$

Thirteen days after the first examination his wife complained of the same symptoms, referable to the eyeballs. V = $\frac{6}{7½}$ in each eye. Slight veiling of the disc margin in the right eye; in the left distinct papillitis, the nasal margin being most affected, with but little involvement of the surrounding retina, and no hemorrhages. She was also syphilitic, presenting mucous patches and a skin eruption. The initial lesion was acquired from her husband, whose primary lesion dated only three and one-half months before. During this period, like her husband, she had been using mercury irregularly. The field of vision for the left eye was concentrically contracted in a moderate degree; the field of the right eye was not affected. Similar treatment was given, and in six weeks the papillitis had almost entirely subsided; $V = \frac{6}{5}$ in each eye, with normal visual fields.

The author believes that these two cases of papillitis, occurring so early after the initial lesion of syphilis, with the circumstances attending the same, must be placed in the class which primarily affect the optic nerve. There was no history of any cerebral complication. In addition, the early appearance of the papillitis would seem to exclude cerebral disease, while concentric contraction of the visual field argues against the extension of the inflammatory process from the sheath to the substance of the optic nerve. It is an unusual and interesting fact that the husband acquired the initial lesion of syphilis, inoculated his wife, and that both presented papillitis within three months from the beginning of the disease, the left nerve being principally affected in each case.

Discussion. Dr. Randall asked if the nose was carefully studied and the possibility of sinusitis of the posterior ethmoid and sphenoid deermined. Some forms of retrobulbar neuritis are thus occasioned and in the phase of sore throat of the early lesion, it seems well to consider this as a possibility in the causation of these cases. The dimness of vision frequently reported at this stage of specific infection is probably generally ascribed to an iritis, but timely examination would probably show the involvement of the nerve, independent or coincident, as being less rare than we generally believe. Dr. Veasey said that the throat had been examined many times, but, as there were no evidences of affection of the sinuses, these were not explored.

William M. Sweet,
Clerk of Section.

BUFFALO OPHTHALMOLOGICAL CLUB.

The first regular monthly meeting was held Monday evening, April 14th, at the home of Dr. F. Park Lewis, 454 Franklin street. Dr. Benjamin H. Grove presented a patient with a small piece of iron in the vitreous humor of the left eye. It had penetrated the cornea and lens and had remained in the eye for five months, becoming encysted in what appeared to be lens substance behind the lens. The Haab magnet gave a negative result. The lens seems to be gradually absorbing; the patient suffers no pain, and refuses to have the eye removed. Dr. John J. Finerty presented a patient with a choroidal exudate in the macular region of the right eye, of questionable etiology. The only history he could get was that about two months ago a drop of hot oil flew into the eye.

Dr. Arthur G. Bennett exhibited a specimen of ossified choroid and calcified lens, both from the eye of a young woman, 22 years of age. Dr. A. A. Hubbell then opened the discussion on "*Astigmatism and Its Correction.*" After mentioning the various appliances ordinarily used in determining this condition, he explained the methods he had found most successful.

The following gentlemen took part in the discussion: Drs. Grove, Lewis, Satterlee, Finerty, Flagg, Bennett and Burrows. After the subject was thoroughly discussed, refreshments were served and a social hour enjoyed.

The club then adjourned to meet on the second Thursday in May, at the home of Dr. Lorenzo Burrows, Jr., 482 Franklin street.

JOHN D. FLAGG, Secretary.

THE BUFFALO OPHTHALMOLOGICAL CLUB.—An ophthalmological club was organized in Buffalo, N. Y., March 14, 1902, by the following gentlemen: Drs. Alvin A. Hubbell, Lucien Howe, Arthur G. Bennett, Lorenzo Burrows, Jr., Benjamin H. Grove, F. Park Lewis, Richard H. Satterlee, John C. Clemesha, Albert E. Hubbard, John J. Finerty, John D. Flagg, Henry Y. Grant, Elmer G. Starr and Benjamin G. Rogers. At this meeting by-laws were adopted and officers elected, consisting of a secretary-treasurer and an executive committee. Dr. John D. Flagg was elected secretary-treasurer; Dr. Benjamin H. Grove and Dr. Lucien Howe, executive committee. The meetings are to be held on the second Thursday evening of each month from September to May inclusive, and are to be both scientific and social in character.

NEWS ITEMS.

PERSONALS AND ITEMS OF INTEREST SHOULD BE SENT TO
DR. FRANK ALLPORT, 92 STATE ST., CHICAGO.

Dr. F. C. Hotz, of Chicago, expects to spend his summer with his family in Europe.

Mrs. Harriet Bacon Smith has bequeathed $10,000 to the Brooklyn Eye and Ear Hospital.

Dr. Wilbur B. Marple was recently elected 1st Vice-President of the New York County Association.

Mr. Chas. H. Haden, of Boston, has bequeathed $50,000 to the Massachusetts Eye and Ear Hospital.

Dr. Wm. M. Thomson recently sailed from New York for London. He will visit many of the hospitals abroad.

Prof. Joseph Schöbl, Professor of Ophthalmology at the University of Prague, died on the 6th day of last March.

Drs. E. W. Jones, E. Jowers and P. Reiss have been appointed Ophthalmologists to the Charitable Hospital of New Orleans.

Dr. Wm. Wallace McClure and Dr. Chas. A. Oliver, have been elected President and Secretary of Wills Hospital Surgical Staff.

Dr. Arthur G. Hobbs, of Atlanta, Ga., was elected Vice-President of the Medical Examination Board of the Atlanta public schools.

Mr. George Anderson Critchett, F. R. C. S. Ed., Senior Ophthalmic Surgeon to St. Mary's Hospital, London, has been made a Baronet.

In October, 1901, an Ophthalmological Society was formed in Copenhagen. Prof. Bjerrum was elected president, Dr. Lundsgaard, secretary.

Dr. Samuel L. Jones and Dr. Wm. A. McCallie were elected eye, ear, nose and throat surgeons to the new City Hospital at Knoxville, Tenn.

In celebration of the success of the recent operation on Dr. C. W. Kelly's eyes, of Louisville, Ky., members of the medical profession of Louisville gave Dr. Kelly a dinner at the Pendennis Club, April 11th.

The Western Ophthalmologic and Oto-Laryngologic Association held its seventh annual meeting in the banquet hall of the Auditorium Hotel, Chicago, April 10, 11, 12. A large and very valuable meeting resulted.

Most ophthalmologists attending the Saratoga meeting will stop at the Grand Union Hotel. The meetings of the Ophthalmological Section will be held in the Young Men's Christian Association Building.

Dr. Willis O. Nance, Assistant Surgeon of the Illinois Charitable Eye and Ear Infirmary, of Chicago, has been elected Secretary of the Western Alumni Association of the University and Bellevue Medical College, of New York City.

Prof. Haab, of Zurich, has decided to pay a visit of four weeks to America. He is expected to arrive with the Kronprinz Wilhelm at New York, May 27th. He will attend the meeting of the American Medical Association at Saratoga, and visit the principal medical centers of this country.

Dr. George de Schweinitz, of Philadelphia, goes to Europe after the meeting of the American Medical Association, and will pass the summer there. He was recently presented with the gift of a loving-cup from the graduating class of the Jefferson Medical College.

The Ophthalmic Record hears with deep regret of the serious illness of the wife of Dr. David Webster, of New York City. Dr. Webster's friends, of which there are many, sincerely trust that Mrs. Webster may speedily recover.

It looks as if the Saratoga meeting of the American Medical Association in June will be the largest and most successful in the history of the Association. One of the significant and pleasant features of the meeting will be the large number of New York men who will attend. We sincerely trust that this movement indicates the disappearance of the late unpleasantness between a large proportion of the New York medical profession and the American Medical Association.

The seventh meeting of the Western Ophthalmologic and Oto-Laryngologic Association was held in Chicago April 10, 11 and 12. It was a very enthusiastic, socially brilliant and scientifically most enjoyable and useful meeting. The officers elected for the ensuing year are: W. L. Ballenger, Chicago, President; J. O. Stillson, Indianapolis, First Vice President; J. M. Ray, Louisville, second Vice-President; E. Pynchon, Chicago, Third Vice-President; D. T. Vail, Cincinnati, Secretary, and O. J. Stein, Chicago, Treasurer.

The Ophthalmic Section of the A. M. A. will welcome with delight some new faces from the state of New York, and we hope that this presages much for the future successful career of the Section. The Ophthalmic Section of the American Medical Association is, and should be, the representative body of ophthalmologists of this country, and we sincerely trust that its success in the future will more than equal its success in the past. The meeting this year will be of especial interest on account of the presence of Prof. Haab, of Zurich, Switzerland, who has consented to come to the meeting and deliver an address on the presence of foreign bodies in the eye. Inasmuch as Prof. Haab is the originator of the large Haab's magnet, which has done so much for ophthalmology and for suffering mankind, his address upon this particular subject will be especially interesting and welcome.

Prof. Haab will probably arrive in New York upon the 27th day of May, on the "Kronprinz Wilhelm." He will come alone. He returns on the "Kaiserin Maria Theresa," which leaves New York June 24th.

While in New York he will be entertained by the ophthalmologists of that city. Wednesday afternoon, May 28th, it is intended that he shall visit the Ophthalmic and Aural Institute; Thursday afternoon he will visit the New York Eye and Ear Infirmary; Thursday evening he will attend the university dinner of the Hospital Graduates' Club at the Manhattan Hotel; Friday afternoon he will visit the Manhattan Eye and Ear Infirmary; Friday evening he will be tendered a reception at the residence of Dr. Weeks;

Saturday evening he departs for Chicago, where he will be entertained by the Chicago Ophthalmological and Otological Society. Prof. Haab hopes to visit Pittsburg, Buffalo, Boston, Washington, Philadelphia, Cincinnati, Cleveland, Detroit, Baltimore and any other cities for which he has time.

We print a list of the papers which will be presented at the Saratoga meeting of the American Medical Association:

1. Address of the Chairman—Dr. Frank Allport.

2. Blepharitis Marginalis—By Dr. Dudley S. Reynolds, of Louisville, Ky.

3. Sub-Conjunctival Inflammations—By Dr. Henry Gradle, of Chicago, Ill.

4. The Treatment of Serpiginous Ulcer of the Cornea—By Dr. Charles J. Kipp, of Newark, N. J.

5. Nature and Treatment of Pterygia—By Dr. John O. McReynolds, of Dallas, Tex.

6. Thiosinamine in Corneal Opacities; Experiences and Clinical Results—By Dr. George F. Suker, of Chicago, Ill.

Address: The Removal of Foreign Bodies from the Eye—By Prof. O. Haab, of Zurich, Switzerland.

7. Foreign Bodies in the Eye—By Dr. William M. Sweet, of Philadelphia, Pa.

8. A Report of Some Cases of Foreign Bodies in the Eye; Where Haab's Magnet Was Used—By Dr. Myles Standish, of Boston, Mass.

9. An Operation for the Restoration of a Cul-de-Sac for the Wearing of an Artificial Eye, with Report of Cases—By Dr. John E. Weeks, of New York City.

10. The Relative Indications for Enucleation and the Mules Operation—By Dr. N. J. Hebpurn, of New York City.

11. On the Symmetry of Our Visual Apparatus as a Dual Organ; Plea to Modify the Customary Notation of the Ocular Meridians—By Dr. Herman Knapp, of New York City.

12. Concerning the Symptomatology and Etiology of Certain Types of Uveitis—By Dr. George E. de Schweinitz, of Philadelphia, Pa.

13. An Analysis of Thirty-Seven Cases of Uveitis, with Special Reference to: 1, Etiology; 2, Relapses; 3, Rare Early Symptoms and Ophthalmoscopic Changes; 4, Importance of Perimetric Examinations—By Dr. Hiram Woods, of Baltimore, Md.

14. The Diagnostic Significance of Keratitis Punctata—By Dr. Harry Friedenwald, of Baltimore, Md.

15. Injuries of the Eye Productive of Diseases of the Uveal Tract—By Dr. Howard F. Hansell, of Philadelphia, Pa.

16. The Pathology of Uveitis—By Dr. W. H. Wilder, of Chicago, Ill.

17.—Pilocarpine Injections in Diseases of the Uveal Tract—By Dr. T. A. Woodruff, of Chicago, Ill.

18. The Treatment of Uveitis—By Dr. W. B. Marple, of New York City.

Exhibit of Early American, British and Colonial Ophthalmological Literature—By a committee consisting of Dr. Casey A. Wood, of Chicago, Ill.; Dr. A. R. Baker, of Cleveland, Ohio; Dr. A. A. Hubbell, of Buffalo, N. Y., and Dr. Harry Friedenwald, of Baltimore, Md. Address by the Chairman, Dr. Casey A. Wood.

19. Neuro-Epithelioma Retinæ (Glioma), with Report of Cases (Illustrated)—By Dr. C. R. Holmes, of Cincinnati, Ohio.

20. Detachment of the Retina; Cases—By Dr. R. L. Randolph, of Baltimore, Md.

21. The Most Rational Methods of Asepsis in Ophthalmic Surgery—By Dr. Joseph A. White, of Richmond, Va.

22. Cataract Extractions, with Remarks—By Dr. David Webster, of New York City.

23. The Disappearance of Opacities of the Crystalline Lens—Dr. Walter Pyle, of Philadelphia, Pa.

Exhibition of Specimens and New Instruments.

24. The Anatomy of the Ocular Muscles and Their Accessory Structures—By Dr. J. Elliott Colburn, of Chicago, Ill.

25. The Physiology of the Ocular Muscles, with Demonstrations—By Dr. E. C. Ellett, of Memphis, Tenn.

26. Principles Controlling Operative Interference in Heterophoria—By Dr. E. J. Gardiner, of Chicago, Ill.

27. Principles Controlling Non-Operative Treatment of Heterophoria, Including the Use of Prisms and Prism Exercise—By Dr. S. C. Ayres, of Cincinnati, Ohio.

28. Principles Controlling Operative Interference in Strabismus—By Dr. Edward Jackson, of Denver, Col.

29. Principles Controlling the Non-Operative Treatment of Strabismus—By Dr. G. M. Gould, of Philadelphia, Pa.

Jacques Daviel, and the Beginnings of the Modern Operation of Cataract (An Address Commemorative of the 150th Anniversary of the Publication of the First Description of the Operation)—By Dr. A. A. Hubbell, of Buffalo, N. Y.

30. The Use of a Mydriatic After Forty-Five Years of Age—By Dr. H. M. Starkey, of Chicago, Ill.

31. The Decentering of Lenses for Near Work—By Dr. G. C. Savage, of Nashville, Tenn.

32. The Need for Correcting Ametropia After Middle Life—Dr. C. M. Culver, of Albany, N. Y.

33. Lessons Learned from a Recent Case of Chronic Myopia—By Dr. Charles A. Oliver, of Philadelphia, Pa.

34. The Clinical Aspects and Non-Operative Treatment of High Myopia—By Dr. S. D. Risley, of Philadelphia, Pa.

35. Associated Movements of the Eyes and Head—By Dr. William C. Posey, of Philadelphia, Pa.

36. Test Objects and Test Letters—By Dr. Elmer G. Starr, of Buffalo, N. Y.

37. Should the General Practitioner Have a Working Knowledge of the Ophthalmoscope and Trial Lenses—By Dr. A. R. Baker, of Cleveland, Ohio.

38. Teaching Ophthalmology to Under Graduates—By Dr. F. C. Todd, of Minneapolis, Minn.

39. Metastatic Sarcoma of the Choroid—By Dr. Meyer Weiner, of St. Louis, Mo.

PRIZE ESSAY ON THE DANGERS FROM SELF-DRUGGING WITH PROPRIETARY MEDICINES.

The Colorado State Medical Society offers a prize of twenty-five dollars for the best essay, for circulation among the laity, upon the dangers of self-drugging with proprietary medicines.

The competition is open to all. Essays must be typewritten in the English language, must contain not more than 3,000 words, and must be submitted before June 15, 1902. Each essay must be designated by a motto, and accompanied by a sealed envelope, bearing the same motto, and enclosing the name and address of the author. The essay receiving the prize will become the property of the Society for publication. Others will be returned to their authors. Essays should be sent to the Literature Committee.

Dr. C. A. Graham, Secretary,
Stedman Block, Denver, Col.

THE
OPHTHALMIC RECORD
A MONTHLY REVIEW OF THE PROGRESS
OF OPHTHALMOLOGY.

VOLUME XI. No. 6. CHICAGO, JUNE, 1902. NEW SERIES.

ORIGINAL ARTICLES.

AN ADDITIONAL CASE OF AMBLYOPIA WITH CENTRAL COLOR SCOTOMA AND GENERAL DEFECTIVE COLOR PERCEPTION FOLLOWING THE INGESTION OF JAMAICA GINGER.

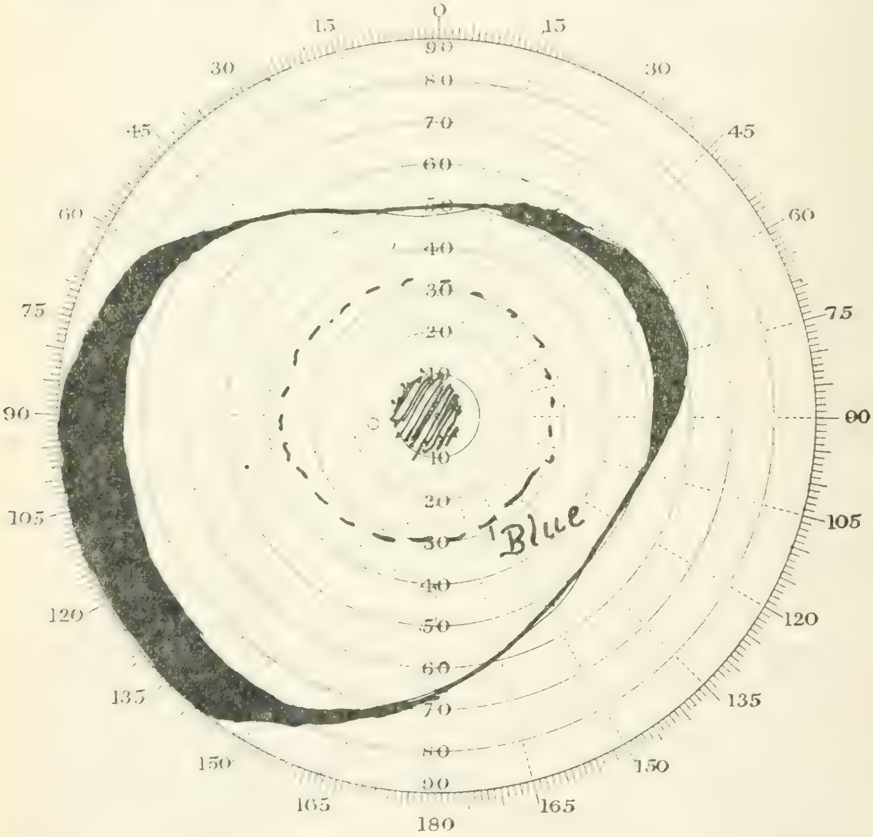
BY SWAN M. BURNETT, M. D., PH. D.
WASHINGTON, D. C.

Illustrated.

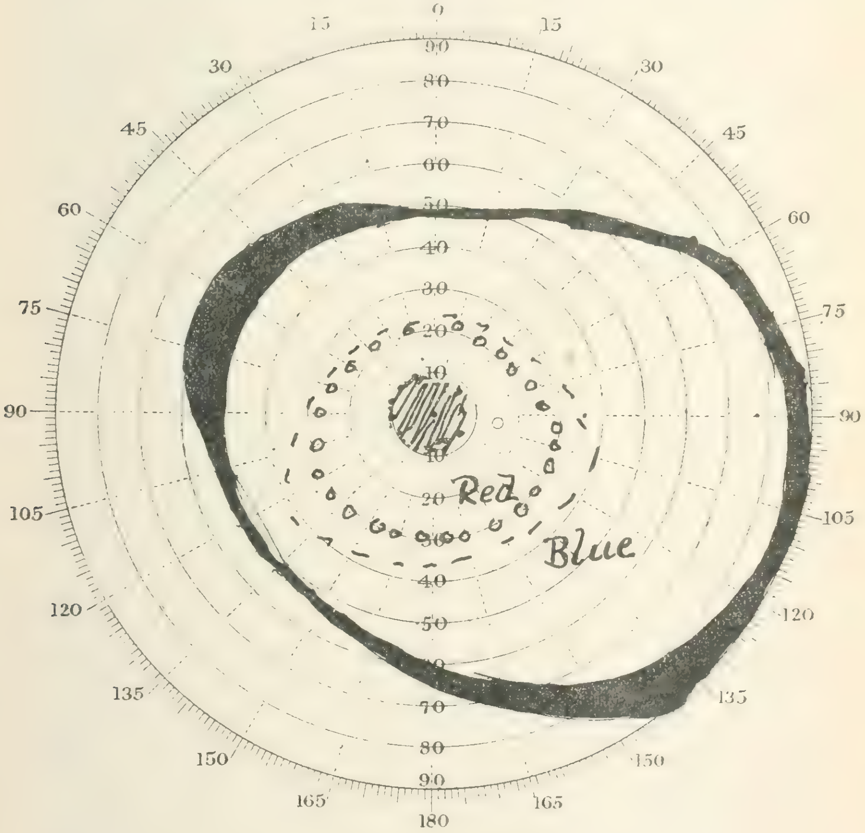
In the *Therapeutic Gazette* for December, 1901, I reported one case of total blindness from Jamaica ginger ingestion, along with two other cases of mythyl alcohol amblyopia.

Since then I have seen one other case of amblyopia due to the drinking of Jamaica ginger, which, aside from its general interest as another instance of this kind of toxæmia, is perhaps not without value from the light it may throw on the pathology of the affection by a study of its color fields.

I saw Mr. X., residing in an adjoining county in Virginia, on January 17, 1902. He is a physically strong German, subject to periodical attacks of dipsomania. In August last, while tapering off from one of these attacks, being in a prohibition community and unable to procure alcohol in any of its ordinary forms, he took two bottles of Jamaica ginger, estimated at about one ounce and a half. This ginger was made by the same firm in Baltimore in whose products Harlan found a large quantity of methyl-alcohol. Within 48 hours he noticed that the vision was very foggy and, while able to see his way about, was unable to read. From this he gradually recovered so far as to be able to read fairly well, but all objects had a "gray look." He went to a physician, who examined his eyes and attempted to remedy the defect by a change of his myopic glasses, but without material benefit. Just after Christmas he had another drinking spell, taking, however, only one bottle of Jamaica ginger, after which he observed that his vision had again considerably deteriorated. He then came to consult me, without, however, giving me any of the foregoing history, only stating that his vision had suddenly become



bad last August. I found him highly myopic and astigmatic. The shadow test gives R. — 8 ○ — 1, 165 L. — 7 ○ — 1, 180. There is not much choroidal change for so high a myopia. The nerve heads are both white, with clearly defined edges. The retinal vascularization does not depart from what might be considered a normal condition, though both arteries and veins seem quite narrow in caliber, a not uncommon appearance in high myopia. This fundus appearance and the fact that vision after correction was only 5-15 in R. and 5-35 in L., together with the history of sudden blindness, at once aroused my suspicion as to some form of toxæmia, and I began interrogations which finally brought out the history as above given. He is a man of scientific education and his observations are therefore of more value than those of one not accustomed to note things carefully. The gray mist which seemed to cover every subject, even those seen most distinctly, led to a very careful examination of the sense of color. This was done both by the perimeter and by Holmgren's worsteds for each eye separately. The V. F. F. for white are practically normal (see Figs. 1 and 2). Blue is the only color which remains to him in its former brilliancy. In his profession it is necessary for him to have a fine color sense, and he had hitherto deemed himself rather above the average in this particular. Blue is per-



ceived, as shown in the diagrams, fairly well towards the periphery of both fields and is also rightly chosen in the wools. When it comes to the other colors there is a hesitancy in marked contrast to the promptness with which he selects blue. Particularly is this true of green. Large masses of green, as in the wools, he can discriminate by careful examination in the right eye, but they have not the intensity they formerly had and are sometimes confounded with browns, grays and other colors of about the same saturation. Red is somewhat more certain with the right eye, and in the perimetric examination the perception of red as a color reaches near the blue but it is not always distinctly red, changing to quite an orange tinge in some parts of the field. In the left all these conditions are exaggerated, and with the small square (4 m. m.) of the perimeter there is no certain or constant perception of green or of red, the two being sometimes interchangeable in portions of the V. F. There is an almost circular central scotoma of about 10° radius for all colors in the left, and for all colors except blue, in the right (see figures).

Unfortunately most of the cases of toxæmia from wood alcohol are so fatal to life or vision that investigations as to the color sense cannot be carried out satisfactorily. In one of my cases where some vision (figures at 2 or 3 meters) remained, I found no color perception, but this was in an exceptionally stupid subject.

Scientifically the point of importance in this as well as other forms of toxic amblyopia, is as to the location of the primary lesion. The new theory of the initial lesion being in the ganglion cells of the retina, is pushing the old one of retro-bulbar neuritis very hard for acceptance, but for its final adoption much clearing up in evidence is necessary. So far as the ganglion degeneration in quinia poisoning is concerned, this may be well explained by the reduced nutrition attendant upon the diminished blood supply due to the spasm of the retinal vessels, though the escape of the macula lutea, whose vascularization is poorest, is a stumbling block not easy to get over. No such vascular change is noted, however, as an effect of methyl alcohol. The visual fields of the two forms are quite dissimilar if the case here reported should turn out to be typical. In quinine amaurosis there is a marked contraction of the visual fields for white, but rarely a central scotoma. The color sense may be at first considerably affected, but usually returns later, certainly in the milder forms. In the case here reported there is a central scotoma for all colors, except blue in the least affected eye, and the general perception of other colors except blue is either absent or not of a normal character. Corresponding with this scotoma for colors there is also a reduction of form sense as shown by the diminished visual acuteness. All these conditions point rather to a neuritis affecting principally the papillo macular bundles, but at the same time, not sparing the others, as shown by the affected color sense all over the whole field.

It is to be expected that a further, closer study of the visual fields for form and color, when possible in such cases, may put us in possession of more data, valuable for the solution of this problem.

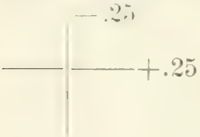
Another interesting point brought out in the history of this case is that individual idiosyncrasy undoubtedly plays a leading role. At the time our patient took his first dose, there were two others who took, respectively, three and four bottles and were not affected, at least not permanently. They complained of a certain amount of fogginess of vision on recovering, but they seemed not to regard it otherwise than the usual sequel of a prolonged spree. Neither of these has been examined as to changes in the fundus or color preception.

Ocular Pain; Its Significance, Varieties and Treatment.—Percy Dunn says that generally speaking pain is an invaluable symptom. It teaches us many important lessons and provides us with many a clue to treatment. This is especially the case in glaucoma and in iritis; so, also, to a great extent, in ocular affections generally, except in diseases of the fundus of the eye, which are not painful. Very little pain occurs in connection with conjunctival troubles. The cernea, on the other hand, is exquisitely sensitive, and the slightest irritation evokes great pain. Corneal lesions leading to photophobia give rise to pain, and in most of these cases we find blepharospasm due to a minute corneal ulcer. In these latter cases the patients should be encouraged to open their eyes voluntarily as far as possible. Locally, the eye should be cleansed twice a day with a 1-4000 chinosol solution, and atropin with cocaine be dropped in. Internally, we should order arsenic and quinine. The pain of specific iritis calls for leeches to the temple, early use of atropin to prevent posterior synechiæ, and, for the constitutional, mercurials. For rheumatic iritis, nothing relieves the pain so quickly as the old-fashioned bran poultice. Pain in eyes which are atrophied may call for enucleation of the affected globe. The pain of glaucoma calls for iridectomy.—*New York Med. Rec.*

THE CROSSED CYLINDER AND ITS USES.

BY MARK D. STEVENSON, M. D.
AKRON, OHIO.

We are much indebted to the genius of Dr. Edward Jackson, especially for the introduction of the cross cylinder in determining the refraction of an astigmatic eye. By a crossed cylinder is meant a combination of a plus and minus cylinder of equal strength, with their axes placed at right angles;



e. g. + .25 D. cyl. ax. 90 ⊃ — .25 D. cyl. ax. 180. The above combination is more difficult and expensive to grind than its sphero-cylindrical equivalent, which may be either — .25 D. sph. ⊃ + .50 D. cyl. ax. 90 or + .25 D. sph. ⊃ — .50 D. cyl. ax. 180. Occasionally a stronger or weaker combination than the above is needed, as a + .50 D. cyl. ⊃ — .50 D. cyl. or a + .12 D. cyl. ⊃ — .12 D. cyl. It is better to use one of the sphero-cylindrical equivalents for each of these combinations, — .50 D. sph. ⊃ + 1.00 D. cyl., and — .12 D. sph. ⊃ + .25 D. cyl., respectively.

The crossed cylinder was originally placed in an ordinary trial lens ring, the axis of one cylinder lying in the same direction as the handle, this was inconvenient and could not be manipulated with ease or rapidity in interchanging the position of the two axes, thus losing time, and therefore diminishing the contrast

In 1899 Dr. D. W. Stevenson, of Richmond, Ind., suggested to the writer that this inconvenience could be overcome by placing a longer handle midway between the two axes, so that a simple rotation of the handle at once interchanged the position of the cylinders. The writer had one made with the handle so placed and added the following modifications:

First—A long, round, corrugated handle that can be easily held and rotated.

Second—Small blackened holes marking the axis of the plus cylinder, the entire glass being clear. The strength of the cylinder is always indicated by figures on the glass or handle.

With this form—which the writer has used for the last three years—the axis of the plus cylinder which is marked by the blackened holes should be placed in the same direction as the axis of the cylinder already before the eye, on rotating the handle, the axis of the plus cylinder is instantly placed at right angles to its former position, which is now occupied by the minus cylinder. The more rapidly this change is made the greater, if any, the contrast.

Whenever a cross cylinder is placed before an eye it adds to one and substracts from the opposite meridian, it never acts like a cylinder adding to or subtracting from one meridian only, nor like a sphere, which adds to or subtracts from all meridians at the same time. It always acts opposite in its two meridians, or axes, increasing the cylinder and decreasing the sphere in the opposite meridian, or decreasing the cylinder and increasing the sphere in the opposite meridian; that is, it always changes the refractive strength of the two chief meridians corresponding with its axes, and the change in the combination is equal to twice the strength of either cylinder.

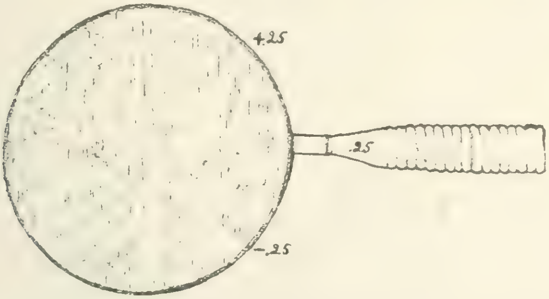


Fig. 1. The axis of the + cylinder is marked by the blackened holes. The figures mark where the strength of each cylinder lies.

If we succeed in determining the correct sphere or cylinder by means of objective tests, as photoscopy (the shadow test) and the result is placed before the eye, the patient will usually choose the other part of the combination correctly. In such a case with the correct sphere and cylinder before the eye, the cross cylinder will show that each meridian is correctly fitted, and that the patient rejects a change in either sphere or cylinder. But if, as usual, we are trying to have the patient choose the correct sphere, while the cylinder before his eye is incorrect, he is sure to choose too strong a sphere if the cylinder is too weak, or vice versa. In this way he will have such a correction before his eye that if the sphere be too strong the cylinder will be too weak, and if the cylinder be too strong the sphere will be too weak. He will not welcome any change in either sphere or cylinder separately, as one of them compensates for the needed strength of the other, and neither of them can be satisfactorily increased without at the same time a corresponding decrease in the strength of the other.

Something is needed that will increase the refractive strength of the combination in one, and at the same time diminish it in the other meridian, or vice versa, so that the contrast made will permit the patient to choose whether he wants one meridian stronger while the other is weaker. The crossed cylinder gives us the simplest, easiest, quickest, most convenient method of doing this because it always adds to one and at the same time subtracts from the opposite meridian. The following examples will illustrate the above statements. If the correction of an eye be + 1.00 D. sph. ⊃ + 1.00 D. cyl. ax. 90 and the patient be allowed to choose a sphere without a cylinder before the eye, he will select either a + 1.25 D. sph., + 1.50 sph., or a + 1.75 D. sph., depending largely on the character of the letter he sees; some letters being distinguished chiefly by the vertical, others by the horizontal lines. If he has selected the + 1.50 D. sph. he will probably choose a + .50 D. cyl. ax., .90 thus correcting the horizontal meridian and will reject any change in either sphere or cylinder made separately.

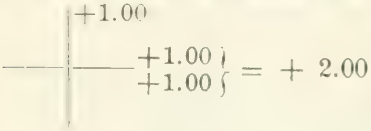


FIG. 2.

But if before placing the cylinder before the eye a test with the .50 D. crossed cylinder is made for astigmatism, he at once accepts the axis of the plus cylinder (marked by the holes) at 90, but rejects it in the opposite meridian.

Fig. 3 represents the strength of the sphere before the eye. Fig. 4 represents the combined strength of the sphere and crossed cylinder, with the axis of the plus cylinder at 90, and the axis of the minus cylinder at 180, this result will be seen to be the same as Fig. 2, giving the most perfect vision possible. Fig. 5 represents the combined strength of the sphere and cross cylinder with the axis of the plus cylinder at 180, and the axis of the minus cylinder at 90, it will be seen that this result is far from correct and the contrast between the two results is so great that the patient has no difficulty

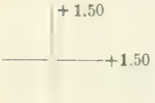


FIG. 3.

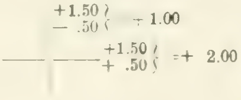


FIG. 4.

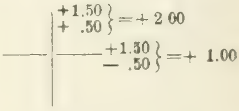


FIG. 5.

in selecting the axis of the plus cylinder at 90 as giving him much the better vision. It will be seen by referring to Fig. 4 and 5 that both meridians are changed at the same time, but in a contrary manner, for while one is strengthened the other is weakened. As stated before, a simple cylinder changes one, and a sphere all the meridians. Fig. 4 shows that in this case a strong plus cylinder is needed with its axis 90 and the strength of the sphere should be reduced, + 1.00 D. sph. ⊃ + 1.00 D. cyl. ax. 90. If in the above case before using the cross cylinder a + 1.25 D. sph. ⊃ + .50 D. cyl. ax. 90 is placed before the eye, and a test is made with the .25 D. cross cylinder, the following figures show the results obtained.

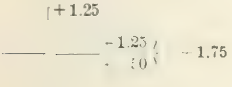


FIG. 6

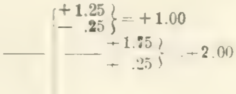


FIG. 7

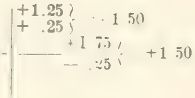


FIG. 8

Fig. 6 represents the strength of the combination already before the eye.

Fig. 7 represents the combined strength of the combination and the cross cylinder with the axis of the plus cylinder 90°, which is the correct result, the same as Fig. 2. Fig. 8 represents the combined strength of the two with the axis of the plus cylinder at 180°, giving an incorrect result. The test shows that one meridian is over corrected, and the other under corrected, and that a + 1.00 D sph. ⊃ + 1.00 D. cyl. ax. 90 is the final result.

The above diagrams and examples illustrate the principles of the use of the cross cylinder, but in actual practice we rarely obtain such precise results. However, the cross cylinder nearly always indicates whether to increase or decrease the strength of the cylinder before the eye.

In the above case, as before mentioned, without the use of photoscopy, the patient would probably have chosen a + 1.50 D. sph. ⊃ + .50 D. cyl. ax. 90 and would allow of no change in either sphere or cylinder alone, although both are incorrect. While it is possible, by repeated trials, to arrive at a correct result by changing both the trial sphere and cylinder at the same time, increasing the strength of one and decreasing that of the other; without the cross cylinder, the method is unscientific and lacks system.

Fig. 9 represents the strength of the sphere and cylinder already before the eye. Fig. 10 shows the combined strength of the combination, and the cross cylinder with the axis of the plus cylinder at 90, corresponding with the axis of the cylinder in the trial combination already before the eye. This result gives better vision. Fig. 11 shows the result with the axis of the plus cylinder held at 180, which the patient rejects. The test shows that the cylinder should be increased, therefore a + 75 D. cyl. is substituted for the + .50 D. cyl. and the patient now chooses a + 1.25 sph. instead of the + 1.50 D. sph. The test with the cross cylinder is again repeated, and shows that the strength of the cylinder should still be increased. Substituting a + 1.00 D. cyl. ax. 90 for the + .75 D. cyl. the patient will choose a weaker sphere, changing the + 1.25 D. to a 1.00 D. sph. A further test with the cross cylinder will show that the correct result is obtained because there is no choice between its two positions.

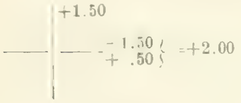


FIG. 9

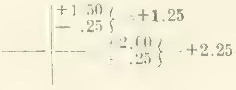


FIG. 10

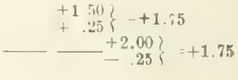


FIG. 11

If in the same case the patient had chosen a + 1.50 D sph. ⊂ + .75 D. cyl. ax. 90, which is possible, if not probable, and the cross cylinder be used, he would have no choice between the two positions, as the results in Figs. 13 and 14 show; but if the sphere is weakened or, in fact, almost any change made in the strength of the sphere or cylinder in this malicious combination, the cross cylinder will aid us.

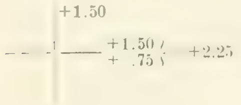


FIG. 12

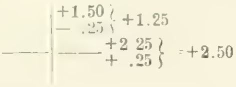


FIG. 13

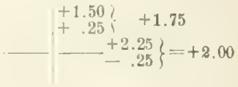


FIG. 14

The following statements should be borne in mind.

First—When the axis of the plus cylinder marked by the blackened holes in the glass is preferred before the axis of the plus cylinder in the combination, the strength of the cylinder should be increased, if before the axis of a minus cylinder, the strength of the cylinder should be decreased.

Second—If the axis of the plus cylinder be preferred in the opposite meridian to the axis of the plus cylinder in the combination, the strength of the cylinder should be reduced, but, if the cylinder be minus, its strength should be increased.

Third—After every change in the strength of the trial cylinder, stronger and weaker spheres should be tried, usually if the sphere and cylinder be of the same sign and the cylinder be increased, the sphere will be decreased, or vice versa. If they are of opposite signs the contrary holds true.

Fourth—Any change in the strength of the cylinder should be followed by rotation of its axis to determine its correct position.

Fifth—If the cross cylinder does not indicate that the strength of a cylinder should be either increased or diminished, the result is probably correct unless a malicious combination is before the eye.

Sixth—It is the best method in practice, to find by trial, two cylinders of nearly the same strength, with one of which the cross cylinder demands an increase with the other a decrease of strength, and then select a lens whose strength is midway between the two as a final result.

Seventh—When other methods fail to detect astigmatism the cross cylinder frequently does.

Eighth—If it should be necessary to increase the strength of one and decrease the strength of the other meridian, the cylinder must be increased or decreased, as the case may be, twice as much as the sphere.

Ninth—Occasionally a malicious combination will have to be broken by a change in either sphere or cylinder before a choice can be made between either position of the cross cylinder.

Tenth—For general use the .25 D cross cylinder is the best, but in a case where there is a high degree of astigmatism, poor vision, a dull mind, or all combined the .50 D. is often the best. However, if the degree of astigmatism is low, vision good, and perception clear, a .12 D may yield better results than either of the above.

Eleventh—The vision is not necessarily improved, and is frequently made worse by holding the cross cylinder before the trial combination, therefore the patient should be asked whether the vision in one position is better, or worse, than in the reverse, and not whether it is better with or without the cross cylinder.

A NEW METHOD OF TREATMENT FOR CHRONIC INTRAOCULAR DISEASES, SUCH AS ATROPHY OF THE OPTIC NERVE, CHOROIDAL TROUBLES, ETC.*

BY S. B. MUNCASTER, M. D.,
WASHINGTON, D. C.

I have been experimenting with a new method in the treatment of chronic intraocular diseases for the last two and a half months with results far exceeding my expectations. My attention was first called to the method for treating this class of cases by specially designed machine constructed by Dr. Henry F. Garey, of Baltimore. It is called the ophthalmo oscillator. The method consists of causing an oscillation of the eye forward and backward, and its application is adapted to each individual case. This oscillation is produced by the ophthalmo oscillator in such a way that the forward movement of the eye is made by intermitting vacuums produced in the cup which is placed over the eye, and the backward movement is caused by the eye being pulled back by the elasticity of the tissues to which it is attached not being pressed back by the alternate compression of air, as experience has shown that compression on the eye to a certain extent neutralizes the stimulating effect of the forward movement.

The oscillation of the eye produced in this manner causes an alternate stretching and relaxation of the nerves attached to its posterior portion, powerfully stimulating increased nutrition and light perception. This method differs from others in having a valve placed over the crank shaft at the posterior portion of the machine and communicating with the front part of the cylinder by a tube. In this way the valve is opened and shut as the crank shaft revolves. By so doing its action is closed on the suction stroke of the piston and opened during the whole of the compression stroke.

There have been various kinds of suction cups invented for massaging the eyeball, and some have proved to benefit certain diseases. You find that some people receive much comfort from simply exerting pressure on the eye with their fingers. A physician told me "that his father bought an instrument for massaging his eyes fifty years ago. It was shaped like an egg-cup and made of wood, small enough to enter the orbit, and about one and a half inches deep. It exerted considerable suction power, and in the light of recent personal experience I am confident that it gave considerable relief to tired eyes. It is a matter of history that John Quincy Adams improved his sight to a remarkable degree by massaging his eyes with his fingers."

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*Read before the Society Ophthalmologist and Otologist, Washington, D. C., April 18, 1902.

I will briefly mention the results with some of the patients treated by this method during the last two and a half months:

Patient No. 1.—Mr. Robert W——, age 18 years, consulted me after a severe illness which he had about four years ago. I found r. e. $\frac{20}{100}$ slight improvement with minus glass; l. e. $\frac{20}{70}$, improved only slightly with plus cylinder glass. It was almost an impossibility to make an ophthalmoscopical examination, owing to retina being so sensitive to light. I advised dark glasses, entire rest for his eyes, also a tonic, and then recommended that he should live in the open air, roughing it after the fashion of the cowboys. After one year's treatment, ophthalmoscope showed r. e. veins enlarged, retina congested; l. e. nothing abnormal; both eyes still sensitive to any bright light. I advised his father to consult an eminent physician in New York. "This was done, and his examination showed r. e. $\frac{20}{100}$ — 0.5 — 0.5 a horiz. = $\frac{20}{70}$; $\frac{45}{1200}$, both congenital amblyopia." Since his return from New York I have had him under treatment with some improvement. His general health is much improved. I examined his eyes two months ago and found r. e. $\frac{20}{100}$, glass improved vision to $\frac{20}{50}$; l. e. $\frac{20}{70}$ + 0.5 a 90 = $\frac{20}{50}$; after treatment with the ophthalmo oscillator vision increased r. e. $\frac{20}{40}$ — 1, glass $\frac{20}{15}$, l. e. $\frac{20}{50}$ + 0.5 a 90 = $\frac{20}{40}$. This young man has been under the instructions of a tutor for three years, and could not use his eyes for reading until this machine was tried on him. Now he can read the finest Jeager's test type for an hour without any trouble.

Patient No. 2.—Mr. S. G. S., a soldier, 33 years old, contracted malarial fever in Manila. Had a sunstroke while marching and was left blind for one hour. He was carried to a hospital and remained for ten days; feeling much better, he tried to continue his march, but experienced failing of vision. He was ordered home to America last May. On examination I found atrophy of optic nerve; r. e. = Sn. 200 a 4 ft., l. e. 200 a 3 ft. Under treatment of strychnia, arsenic, iodine and quinine at various times his vision gradually decreased, until two months ago, when it was r. e. 200 a 15 inches; l. e. 200 a 10 inches; since using the ophthalmo oscillator his vision has increased to r. e. Sn. 200 a 6 ft., l. e. Sn. 200 a 5 ft. During the last ten days he has had a return of malaria and his vision remains about the same. This man is drawing a government pension of $30 per month for diseases of the optic nerve.

Patient No. 3.—Mr. K——., a German, was led to my office two months ago; ophthalmoscopical examination showed large choroidal patches in each eye; beginning cataract left eye; r. v. = light perception only; l. v. = Sn. 200 a 8 inches. After two months' treatment with the ophthalmo oscillator he can now read l. e. Sn. 200 a 8 feet. This man has been treated with medicines, but without any benefit.

Patient No. 4.—Mr. S——., has old choroiditis, with central scotoma of each eye; r. v. Sn. 200 a 3½ feet; l. v. Sn. 200 a 3 feet. After two months' treatment with the ophthalmo oscillator his vision has increased to r. e. Sn. 200 a 8 feet; l. e. 200 a 5 feet. He states that this trouble was brought on by exposure to cold seven years ago. Ophthalmoscope shows large pigment deposits at the outer one-third of the retina and pigment deposit at macula lutea; beginning cataract left eye.

I could increase this number to twelve or fifteen treated during the last two months, but as I have used medicine in addition with their treatment I will not include them.

The ophthalmo oscillator is of value in the hands of a careful physician who treats the diseases of the eye, but with an inexperienced person much damage may be done.

Ocular and Visual Disturbances Induced by Tobacco.—Santos Fernandez announces that disturbances of this kind are comparatively rare in Havana, notwithstanding the wide-spread use of tobacco. Conjunctivitis produced by floating particles in tobacco factories is extremely rare and mild. There are 150 tobacco factories, and they employ between 12,000 and 13,000 employes, but the buildings are not constructed so airtight as in colder climates, and Havana tobacco, he adds, contains only 2 to 3 per cent nicotine, while French and American tobacco has 8 to 9 per cent. This is probably the reason why nicotine amblyopia is so much less frequent than in Europe, notwithstanding the incessant smoking. His experience includes 36,000 inscribed patients and 200,000 consultations in his ophthalmologic practice. Asthenopia is more frequent, and he also mentions the predominance of hypermetropia in Cuba in contrast to other countries in which myopia generally prevails.

THE

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REVIEWS.

Facial Paralysis and Associated Lateral Paralysis of the Muscles of the Eyeballs of the Same Side. Electric Reactions.—Pechin and Allard. *Rev. Gen. d'Ophtalmologie,* January, 1902. Paralysis of the associated lateral movements of the eyes, either alone or when accompanied by other paralytic phenomena, confront us generally with real difficulties in diagnosis. When the paralytic phenomena, apparently due to organic lesion, depart from the customary clinical picture, and more especially when they appear in hysterical subjects, the difficulty in determining the syndromes becomes much greater. An analogous case has been studied in Professor Brissaud's clinic. Woman, 46 years old, without especial antecedent hereditary history, except an abscess of neck and arm during the third year. There is a scar behind the ear at about the level of the left inferior maxilla. In 1870 she became hypochondriacal, during an illness of her husband. In 1873 she suffered from some mental disturbance, which lasted about three months, during which time she was not conscious as to what she saw or did. Finally, her husband deserted her. In 1881 she had an abscess of the breast, and in 1883 an operation for prolapse of the uterus. She had had six children, five having died of meningitis and convulsions. In 1889 she noticed disturbance in vision while knitting, and, as a result of it, was obliged to stop. Not many days after she noticed a deviation of the mouth and involuntary contractions of the lips. During the major part of the last two years she has been receiving treatment at various Paris hospitals for frequent nervous attacks, accompanied by hallucinations of sight and sound. She has facial paralysis of the left side, complete and total. The skin of the forehead and cheek is absolutely smooth, the left eye more widely open than the right, and the mouth slightly drawn to the right and upward. There is paralysis of the frontalis and orbicularis on the left side. It is not possible to close the left lid, and there is lagophthalmos during sleep, but no keratitis. Epiphora absent. Slight deviation of tongue and uvula. There is no modification in the reactions of the muscles of the limbs and trunk. In the face there is considerable increase in the galvanic and faradic reactions of the trunk of the facial, its three branches and all the muscles of the face. Violent headaches, with buzzing in the ears, especially in the right. Hemianæsthesia of the left side extending to the face; anæsthesia of the face; ovarian point on the right. Gait peculiarly spasmodic, patient rubbing the floor with her feet and lifting them with difficulty. Patella reflex normal, and that of the *fascia lata* preserved. Babinski's sign absent. There is lateral associated paralysis on looking to the left. The eyeballs do not pass the median line. Lately a slight modification is noticed in the right eye, limited adduction with nystagmus. The left eye always stops in the so-called primary axis. There is no abduction. When the patient closes the right eye and looks at a sheet of white paper, she immediately has diplopia and then polyopia. There is likewise color vision; a black line appears to her as having a red and yellow border. She sees intermittently superimposed rainbows. This monocular diplopia, with disturbance of the chromatic sense was noticed during successive examinations. Corneal anæsthesia. Hyperæsthesia of the conjunctiva of the lid and eyeball of the left side. The visual field is retracted, although the examination was made with great difficulty, because with each attempt the patient had an attack characterized by frontal pain, followed by contractions of the arms with retraction of the head. She finished with yawning and hiccoughs. This same thing happened when she fixed the attention or when the current was passed through the frontal region. Slapping the side of the neck brought the attack to an end. Fundus normal. No amblyopia or amaurosis. In spite of the many symptoms pointing to hysteria and the monocular diplopia, the authors are not inclined to submit this as a case of hysterical facial paralysis. The participation of the superior facial does not absolutely exclude hysteria. Dumont pallier wrote, in 1891, somewhat as follows: "Formerly, hysterical paralyses were not admitted to exist; today they are admitted for the lower part of the face; some day, perchance, this paralysis will be observed as affecting the upper part, and possibly both upper and lower simultaneously." Citations from Oppenheim and other writers show that this prediction has been realized. In hysterical paralysis the lower branch of the facial is affected, and usually it is bilateral. In this patient the paralysis is well marked and remains so up to the present time. She shows an exaggeration in response to electrical stimulation, while in the hysterical paralysis there is no such modification. We do not reject the hysterical ætiology on the ground that hysteria cannot be one of the causes. Parinaud, who has studied the subject thoroughly, admits that it may be, but cites no cases. The oculo-muscular disturbances of hysteria are blepharospasm, nictitation, pseudo-paralytic ptosis, disturbances of the accommodation and convergence, nystagmus and strabismus by contracture, or paralysis of the lateral recti muscles. Hysterical paralysis is characterized by loss of voluntary motion, with preservation of the reflex. In considering the question of organic lesion, it must be determined whether the paralysis is peripheral or cerebral, and in the latter case whether central or cortical. Although we have in favor of a peripheral origin, the clinical aspect of total paralysis of the muscles of the face and the platysma, and the complex of Bell, whether it is considered according to Campos as a physiologial phenomenon appearing in facial paralysis, or, according to Bonnier, as a disturbance due to nuclear irritation of the oculo-motor, itself arising from labyrinthine irritation, this peripheral origin is not in harmony with the exaggerated electrical reactions, with the absence of qualitative modifications in galvanic irritation (reaction of degeneration) in paralysis of one and one-half years' standing, and finally, with the absence of neuralgias which often accompany paralysis of peripheral origin. There is no reason for considering the cicatrix behind the ear as a probable cause. Although large, the scar is freely movable; there can be no question of lesion of the facial at this point. Absence of hemiplegia with paralysis of the superior facial excludes central lesion. Finally complete paralysis with absence of hemiplegia points to cortical lesion, besides, in favor of this, there is present, or exaggerated, electro-muscular contractility. It seems therefore necessary to admit that this total facial paralysis, presenting the clinical appearances of peripheral facial parlysis, and developing in a hysterical subject is caused by a lesion located in the corpora quadrigemina or thereabouts. And what goes to confirm this topographical diagnosis is that the same mesocephalic area will explain, and by a single lesion, the associated paralysis on the left, the hemiophthalmoplegia lateral of Brissaud. This ocular paralysis is not well explained by a nuclear lesion, because the fundamental character of this form is disassociation. Still more, a destructive lesion of the common nucleus of the facial, of the external motor-oculi and the nucleus proper of the facial would entail degeneration of the nerve and would show itself as regards the eyes by permanent strabismus with qualitative and quantitative modifications in the electric reactions. The seat of the lesion is at the centers of co-ordination, the regulators of associated movements. These centers are extra-nuclear, supra-nuclear. This mesocephalic center has been described by Wernicke and others. The lesion is probably one of pressure doubtful in nature, possibly tubercular and involving the posterior longitudinal fibers. A lesion at that point would explain at once the facial and ocular parlysis. WM. DUDLEY HALL.

A Case of Complete Absence of the Visual System in an Adult.—Dr. W. G. Spiller, of Philadelphia, reports in the winter number of *Brain* for 1902, page 631, a very interesting study serving to localize the cerebral system of vision. Von Monakow, Spiller says, locates the primary optic centers in the external geniculate body, the surface of the pulvinar and the superficial gray matter of the anterior colliculi of the corpora quadrigemina. Von Monakow says that Stilling, Bernheimer, and Kolliker believed that the visual fibres arise also in the subthalamic body, the internal geniculate body, and the tuber cinereum. The anterior colliculi of the corpora quadrigemina in man, according to his view, have a very subordinate role in vision, and he believes that about 80 per cent of the optic nerve-fibres terminate in the external geniculate body. Spiller's case of congenital absence of the central visual system confirms these views of Von Monakow. It shows also that Meynert's commissure and the habenula are not part of the visual system. According to Von Monakow centrifugal fibres—*i. e.*, fibres having their origin in the visual cortex—are present in the optic radiations and pass to the inter-brain and mid-brain. The giant pyramidal cell bodies of the third layer in the cortex of the occipital lobe give off axones, which pass by way of the optic radiations and the arm of the anterior colliculus of the corpora quadrigemina, to terminate in the superficial medullary substance and gray matter about the aqueduct of Sylvius in the anterior colliculus. The Vicq d'Azyr fibres, he says, are often in a double row in the occipital lobe. They come, in greater part, from the fibres of the optic radiations which pass to the third layer of the cortex, but some of the Vicq d'Azyr fibres may belong to an association system. In long-standing lesions of the optic radiations the Vicq d'Azyr fibres are very atrophic, and the double row of these fibres is scarcely recognizable. In Spiller's sections the comparatively few fibres passing to the pulvinar are doubtless the fibres described by Von Monakow as arising in the occipital lobe, and in the sections the Vicq d'Azyr fibres are not very distinct.

Spiller's case has such an important bearing upon the subject that I venture to reproduce his report of it quite in detail. It was the case of a boy born in 1878 and admitted to the Pennsylvania Training School for Feeble-Minded Children, March 12, 1895. At the time of admission he weighed thirty-eight pounds, and his height was 3 feet, 7 inches. He was an idiot, absolutely helpless, and very unclean. He could say "mamma," and nothing more. He was passionately fond of music. At the time of admission to the school he appeared to be about 8 or 10 years of age.

Dr. Spiller saw, on July 30, 1897, and regarded the case at that time as one of cerebral spastic paraplegia of the lower limbs, with absence of the eyeballs. The boy was unable to stand alone, and if he were stood up and not supported he fell backward. When supported he could take a few steps, but in doing so one lower limb was moved in front of the other (cross-legged progression). His knee-jerks were exaggerated, but ankle-clonus was not obtained. He could move his lower limbs while he was sitting, and there was not excessive rigidity of these limbs on passive motion. He uttered only a few monosyllables. His palpebral fissures were very small. He died March 2, 1899, and the necropsy was made two days later. The necropsical notes which are of importance for the understanding of the case are as follows:

The body was that of a child apparently about 12 years of age, though in reality his age was 22 years. No signs of puberty were present. The palpebral fissure of each eye was very small, and the orbits contained only a small amount of what appeared to be fibrous connective tissue. Unfortunately, permission had not been given for the removal of the orbital contents. Nothing resembling an eyeball was seen.

The optic foramina did not exist, and it was impossible to find an opening in the usual situation of these foramina, and here there were merely slight depressions in the skull. No trace of optic nerves, chiasm, or optic tracts could be found. There was no sign of an external geniculate body on either side, and the thalamus on each side had nothing resembling an optic tract passing from it. The posterior part of each thalamus was rounded and larger perhaps than one would expect to find it in a case of complete agenesia of the visual system. The brain was small, firm, and not œdematatous. The left ascending frontal convolution in the center for the upper limb was very small, to which fact was possibly due the contracture of the right forearm, because of the imperfect development of the nerve fibres innervating this limb. The anterior colliculi of the corpora quadrigemina were fully as large and as well developed as the posterior. The occipital lobes were small, and the cuneus on each side were small, and the calcarine fissure short. The lower olives were covered by thick bands of nerve-fibres—*i. e.*, the external arcuate fibres were unusually well developed.

The spinal cord was small, but not otherwise abnormal. The brain was hardened in formaline, and the basal ganglia of one hemisphere were cut in serial sections, while those of the other hemisphere were preserved intact as a gross specimen. Sections were made through the cortex of the left calcarine fissure, and stained by thionin and by Wiegert's hæmatoxylin method. Frontal sections were made through the right occipital lobe in order that the optic radiations might be studied when cut transversely. The nerves supplying the ocular muscles were also cut and examined.

The cortex of the left calcarine fissure stained by thionin contained many nerve cell bodies, but they were possibly slightly less numerous than are the cell bodies in sections from a corresponding region of a normal brain, especially in the third, fourth and fifth layers. The giant cells of the third layer were represented, but were possibly not as numerous as in a normal brain. The fibres of Vicq d'Azyr of the cortex of the calcarine fissure were not very distinct in sections stained by Weigert's hæmatoxylin method, but they were not entirely absent.

The optic radiations in the frontal sections of the occipital lobe were not entirely absent, but the area occupied by them was not very distinct.

Meynert's commissure was normal, and stained well by Weigert's hæmatoxylin method.

Careful examination of the serial sections failed to show the slightest trace of an external geniculate body on either side, although the internal geniculate body was well developed.

Some few medullated nerve-fibres are found within the pulvinar, but those in the posterior portion of the thalamus are much fewer than those in the anterior portions.

The habenula in the horizontal sections appears well developed and the fasciculus retroflexus of Meynert is well stained.

Sections through one-half of the oculomotor nuclei stained with thionin contain many nerve-cell bodies belonging to these nuclei, and these cell-bodies stain well with thionin and appear to be normal. They are possibly not as numerous as cell bodies in the oculomotor nuclei of a normal brain. Section through one-half of the oculomotor nuclei was also stained by the Weigert hæmatoxylin method.

Transverse sections of the extracerebral portion of the left oculomotor nerve near the cerebral peduncles stained with ammonium carmine show an apparently normal nerve. The nerve is possibly smaller than an oculomotor nerve from a normal brain, but it contains no sclerotic areas. It contains, however, some areas in which very fine nerve-fibres form distinct groups, but there is no scarcity of large nerve-fibres.

Transverse sections of the right culomotor are very similar to those of the left oculomotor nerve. The sections stain well with Weigert's hæmatoxylin method.

One of the trochlear nerves in transverse sections, stained either by ammonium carmine or Weigert's hæmatoxylin, appears to be normal and contains nerve-fibres of good size. The nerve-fibres stain well with the Weigert hæmatoxylin, but in sections so stained the nerve-fibres are perhaps not quite so close together as in the trochlear nerve from a normal brain.

The nerve-fibres of the left abducent nerve stained in transverse sections by acid fuchsin are exceedingly small, much smaller than those of the oculomotor and trochlear nerves, but they stain well with Weigert's hæmatoxylin.

The right abducent nerve in transverse sections stained by acid fuchsin contains many nerve-fibres that are much larger than any of those found in the left abducent nerve, but it contains also many sclerotic areas. Some of the nerve-bundles stained by Weigert's hæmatoxylin method contain very few medullated nerve-fibres. The contrast between the abducent nerves and the other two ocular nerves on each side is most striking .

The nucleus of each abducent nerve contains many nerve-cell bodies which, with the thionin stain, appear to be normal.

The nerve-cell bodies of the anterior horns of the spinal cord in the cervical and lumbar regions stained with thionin are normal, but possibly a little smaller than those usually present in the anterior horns. No sclerotic areas are found in the lateral columns, neither are the nerve-fibres in these columns unusually fine in transverse sections.

The conclusions which Dr. Spiller draws from his case are:

(1.) The chief "primary" optic centre is the external geniculate body.

(2.) The pulvinar of the optic thalamus is also an important "primary" optic centre.

(3.) The anterior colliculus of the quadrigeminal body in man has an unimportant relation to vision.

(4.) The subthalmic body, the habenula, the internal geniculate body, probably are not part of the visual system.

(5.) The cortex of the calcarine fissure may contain nearly the normal number of cell bodies, even though the visual system may be undeveloped.

(6.) The nerves to the ocular muscles and their nuclei may be developed even though the visual system is absent.

(7.) Congenital spastic paraplegia may be the result of deficient formation as regards number or size of the neurones of the central motor system, even though such a deficiency may be difficult to detect by the microscope.

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Religious circles in Brooklyn, N. Y., are interested in the announcement of Rev. Dr. Charles M. Herald, pastor of Bethesda Congregational Church, Brooklyn, who recently was stricken with blindness while in the pulpit, that he has recovered. Dr. Herald appeared at the council of Congregational ministers in Immanuel Church, and in speaking of his recovery declared that God had restored his sight. He said:

"When the surgeon performed the operation he said there was no hope of my recovering my sight. I then fought the battle—the most stubborn and most trying battle I have ever known in my thirteen years' experience as a preacher of the gospel. The enemy of my soul then appeared and jeered at me saying: 'Now do you believe that the grace of God is all-surviving, as you have preached to your congregation for twelve years? Now will he help you? God heard my prayer and did what man could not do. He restored my sight."

CORRESPONDENCE.

THE ABSORPTION TREATMENT OF CATARACT AND ITS EFFECT ON THE EYES.

Editors Ophthalmic Record.—My Dear Sirs: I am desirous to know if you or any of the readers of The Ophthalmic Record have had any experience in operating for cataract on patients who have received what is known as the "absorption" treatment for that affection.

I have operated on several such cases with varied success, and it has just come to my mind recently that what is known as the "absorption" or "resolvent" treatment is very injurious to the integrity of an eye which must later undergo an operation for the extraction of the lens. In all of the cases which have come under my observation the cornea was flabby, having lost its normal firmness, and the parts divided by the incision would not usually coapt until the aqueous was replaced.

In the case of a gentleman, 68 years of age, who had closed a ten months' continuous treatment for "absorption" about a month previous, which was operated five days ago, the cornea was unusually thin and so fragile that it seemed rather to tear before the knife, not through force, but that the parts had lost their natural cohesion and organization, as if in a state of disintegration. After rupturing the lens-capsule I attempted in the usual manner to remove the lens, and was making but the slightest pressure when there was a terrible gush of vitreous, which appeared very fluid. I then attempted to remove the lens with the scoop, but failed on account of a further loss of the vitreous. I now desisted in further attempts to remove the lens, instilled a few drops of a 2 per cent solution of atropine, closed the lids and applied a loose dressing.

Six hours later I again examined the eye, and found the aqueous chamber refilled, the corneal incision coapted and the lens well in the pupillary space, which was very much dilated.

I now thoroughly cocainized the eye, after which the lens was removed with the wire loop with very little loss of vitreous, but the cornea, as before, being unable to support itself, dropped down in its center. The eye was loosely dressed, as on the former occasion, and when examined on the following morning the aqueous humor was replaced and the cornea had assumed its normal shape. The wound was nicely coapted. A week has now elapsed, and, barring some capsular matter in the pupillary space, the patient bids fair for a speedy recovery.

I can now account for at least seven patients upon whom I have operated for cataract who had previously taken the "absorption" treatment. I have probably had more such patients, for I have never thought of making inquiry whether a patient had taken the so-called "treatment," but I call to mind that an unusual number of my cataract patients in the last two years have had the flabby condition of the cornea above mentioned, and that it was not unusual to lose vitreous, but regarded them as simply coincidences. I learn from other oculists in this locality that they have had similar experience with their cataract patients, but, like myself, gave the matter little thought.

I am informed by physicians that many patients throughout the country have been and are now taking this "treatment" for all forms of eye affections, and, what is more surprising, that not a few physicians are prescribing it for their patients. I have heretofore not regarded its effects in any manner but indifferently, as we all do regarding such "infallible" nostrums. I am now satisfied that this "treatment," whatever it may be, is very injurious, and that physicians should advise their patients against its use.

How the remedy acts to produce the results herein mentioned I do not pretend to explain at present, for I am not cognizant of its nature, but I am positive that it is injurious to those patients who, after its constant use for a considerable time, are obliged to undergo an operation. Yours very truly, J. W. Wright.

Columbus, Ohio, May 9th, 1902.

Phlyctenular Conjunctivitis.—Hilbert investigated 100 children affected with phlyctenular conjunctivitis and found swollen scrofulous glands in 73, scrofulous eruptions in 22, and rachitis and scrofula in 5. This association with scrofula cannot be a mere coincidence, and he proclaims that treatment of the conjunctivitis should aim first to cure the scrofulous condition. He has found cod liver oil, baths, etc., the best general measures, and supplements them by insufflation of calomel into the eye once a day. The eye is rinsed out several times a day with a tepid solution of boric acid. In case iodin is being taken internally, the calomel cannot be used on account of the danger of the formation of sublimate. He therefore substitutes a salve of the yellow oxide of mercury in five parts of vaseline. Caustic remedies are distinctly injurious. Under this combined treatment the affection is cured in six to ten days.

REPORTS OF SOCIETIES.

COLORADO OPHTHALMOLOGICAL SOCIETY.

Meeting held at Denver, February 15; Dr. D. H. Coover in the chair.

Dr. Geo. F. Libbey, of Colorado Springs, read the following paper on *Syphilitic Iritis and Cyclitis.*

Since inflammation of the iris or ciliary body rarely occurs singly, and even then not without hyperæmia of its anatomical and physiological associate, it might seem quite as well to group these two affections under the term of irido-cyclitis; but inasmuch as syphilis in its secondary stage shows a marked selective action for one of these structures, and in its tertiary manifestations for the other, it seems proper to consider them separately. Hereditary syphilis manifests itself in iritis, often associated with interstitial keratitis, and is generally seen only in early childhood and youth. Cyclitis may be associated with the iritis; but this is not usually the case. Barring traumatism, inherited syphilis is almost always the cause of iritis in children, and the inflammation may travel backward, affecting retina, choroid and optic nerve. This form of iritis is very apt to recur. Acquired syphilis is the cause of fully one-half the cases of iritis seen in adults. Again, in over half these cases both eyes are affected. Nettleship says, "Symmetrical in two thirds of the cases but asymmetry is common." The disease is not liable to recur if properly treated: still improvement or apparent cure locally, before the constitutional eradication of the disease, is sometimes followed by distressing and serious relapses so that "the last end of that man is worse than the first."

Syphilitic iritis in adults is often insidious in its onset. Hyperæmia, pericorneal injection, and even posterior synechiæ may develop, giving no special discomfort or alarm to patient. It is only when peri-orbital pain or dimness of vision supervenes that relief is sought. In other cases the congestion, photophobia, lachrymation, and pain develop quickly and are most troublesome. Hypopion sometimes occurs, the character of the onset of the iritis bearing no relation to this complication.

Syphilitic iritis belongs to the secondary stage, and is almost always plastic, the adhesions between iris and capsule being tougher than in iritis from other causes. It is marked by red, reddish yellow, or reddish gray nodules, either at pupillary or ciliary margin, never in the zone of iris between. They may be lost sight of at the ciliary margin and yet exist. They sometimes break down or may be absorbed without suppurating under anti-syphilitic treatment; but, in either event, they are apt to cause atrophic spots in iris. In their place there may be only swelling of pupillary margin or broad posterior synechia which do not yield to atropine. The papules or nodules usually appear during the secondary or papular stages of syphilis, following the first eruptions on skin or mucous membrane, within first or second year after the disease is acquired. This association makes question of diagnosis easy. Again, syphilitic iritis may present no characteristic marks. The diagnosis can then only be established through well marked secondary symptoms or to the favorable action of anti-syphilitic remedies. The ability to take *large* doses of iodides and mercurials has always seemed to me pretty clear evidence of syphilitic taint. In the tertiary stage of syphilis, iritis, except as associated with cyclitis, is rather rare. It is, however, in this stage that the ciliary body is especially liable to attack. The distinctive symptoms of specific cyclitis as differentiated from specific iritis are exquisite tenderness over ciliary region, generally more pronounced over a localized but ever-changing area, and keratitis punctata. The latter symptom, with increased tension, is characteristic of serous cyclitis. Gumma is much less frequent in ciliary body than in iris; but when it does occur it is very serious. While absorption may be complete and speedy, at times a gumma may cause exudate into vitreous and resulting shrinking of that body and detachment of the retina; or it may burst through the cornea or sclera, causing great damage; or it may cause suppuration and loss of eye.

Dr. Edward Jackson, of Denver, read a paper on *Treatment of Ocular Lesions of Syphilis.* "Treat the patient, not the disease," is an injunction strongly urged by masters of therapeutics. It is a reminder that medicine in general is not the meeting of specific conditions with specific remedies, but the aiding and supplementing the efforts of the organism to return to its normal. The warning is, perhaps, most widely needed by medical students and enthusiastic young practitioners. But when it comes to a disease for which it is generally assumed that we have specific remedies, the cautions may need to be reiterated, even for experienced practitioners. It needs special emphasis in connection with the treatment of syphilis. We would hardly think of treating syphilis without resort to mercury and pot. iod. Perhaps in all cases one or both of these should be tried. And yet, are they true and absolute specifics? In spite of the most intelligent and energetic use of them, the disease may be rapidly fatal. They may be ignored and the patient perfectly recover. A large part of the syphilitic lesions we are called upon to treat are not incident to the specific contagious disease; but are rather its sequels. The problem is not one of combatting syphilis; but of patching up the system that has been damaged by that disease. The common ocular lesions of syphilis are not radically different from conditions that arise in the nonsyphilitic. De La Personne states that only 40 per cent of cases of interstitial keratitis are of syphilitic origin. In spite of the schemes of differential diagnosis that we may draw up, one would not wish to make a positive diagnosis of syphilitic or nonsyphilitic iritis solely upon the evidence furnished by the affected organ. Let us be modest about our specifics. When they act as we desire, the improvement is sometimes like magic. But when they do not bring about improvement, let us remember that the case may present other indications of practical importance besides a syphilitic history. When the ocular lesion does not improve under specific treatment and the general condition gets worse, let us have the courage and the common sense to stop all specific treatment. The worthlessness of mercury and potassium iodide for interstitial keratitis has often been noted. But in gummatous iritis, after the eye had grown worse or remained stationary for weeks under the liberal administration of these "specifics", I have seen it improve rapidly when these were stopped completely, and the patient placed on quinine, iron and a general tonic treatment. No one ocular lesion attends all cases of syphilis, or a majority of them, or even a large minority of them. Evidently to produce the ocular manifestation there must be the syphilis and something else—some predisposing condition. Even if mercury were a perfect specific for syphilis, which it is not, it would still be worth while to hunt out and treat the something else; and not rarely the something else overshadows in importance the specific factor. Let me mention in passing two conditions that most frequently and urgently demand attention apart from the specific element. The first is anæmia and distinct cachexia most decidedly developed late in the secondary stage or in congenital syphilis. It needs not only removal of a specific cause. It must be combatted by outdoor life, good food and general tonics. The second is a general tendency to angio-sclerosis, which gives character and direction to the tertiary lesions of syphilis. Or which, working in the same way, reinforces and renders fatal the strong general tendency of the disease in that direction. It, too, requires regulation of life, diet, the use of baths and mineral waters, quite as much as the administration of iodide of potassium. To attempt a more general review of the non-specific treatment would be quite beyond the bounds of this brief paper. Let me refer to a few points of the specific treatment. Without questioning the general rule of mercury for early and iodides for late manifestations, it may be said that there is no syphilitic lesion of the eye for which mercury may not be of great value. It should at least be carefully tried if the more common treatment seems ineffective. For the iodides we may sometimes substitute salycilates, at least temporarily with advantage. The iodides must be pushed in large doses, over an ounce a day of iodide of potassium, perhaps. But I am not satisfied that the tolerance of iodides is conclusive evidence of syphilis. It may be well to continue treatment over long periods; but when marked improvement of the general condition occurs without improvement in the ocular lesions, I have not seen much gained by prolonged treatment. As to methods of administration, I like in the beginning to give calomel freely, until it acts on the bowels. As to inunctions, smaller quantities very thoroughly rubbed in are more effective and less likely to disgust the patient. If more than a few inunctions are to be used, the glass rod to rub in with is worth having; because the lessened friction saves local irritation. I have had no experience with intra-muscular or intra-venus injections. The iodides I generally prescribe in strong solutions, the dose to be increased by drops. By keeping fairly below the limit of tolerance they can generally be given with equal effect and for long periods without exciting the disgust, which will almost certainly arise if this limit is often transgressed.

Discussion.—Dr. Walter Hilliard, of Denver, said he always made a careful examination of the epitrochlear glands in a case of suspected syphilis. He considers their enlargement pathognomonic of syphilis. He also examines the skin carefully for cicatrices and believes that such skin lesions are further evidence of syphilis. He believes in a general uveitis from syphilis and that syphilis does not attack one of the uveal structures alone. With pupil dilated admaximum peripheral choroidal lesions can frequently be made out ophthalmoscopically. He is in favor of the mixed treatment, i. e. potassium iodide and bichloride. He uses in addition sat. sol. K. I. pro-re-nata. He has given as high as twelve hundred grains a day. He has the patient drink large quantities of water after each dose, and when the doses are large he insists on patient drinking from a half to a gallon and a half of water daily. He believes it prevents stomach complications and increases the action of the K. I.

Dr. J. A. Patterson, of Colorado Springs, called attention to the fact that parenchymatous keratitis occurs from acquired syphilis as well as from hereditary. He recalled a case of an injured eye in a man who had had syphilis. There was a node at periphery of iris. It was a question if it was a specific node or a foreign body. Later an operation revealed a foreign body. The difficulty of obtaining a history in some cases called to his mind a man who had had some nodes on his leg and paralysis of ocular muscles. He denied having syphilis until finally on his death bed he confessed having had it thirty years before.

Dr. A. C. Friedmann, of Colorado Springs, spoke of acquired parenchymatous keratitis being unilateral. That the lens is immune to syphilis and that it becomes opaque as a result of faulty nutrition through disease of surrounding structures. He said that tuberculosis of iris was a disease of youth and that syphilis of iris was usually found in adults. He emphasized the value of general constitutional treatment in conjunction with or alternating with antispecific treatment. He is favorable to codliver oil. He quotes Hirschberg as saying that the iodides in specific cases may produce iritis, but if the dose is increased it will cure it. He believes that synechia in an old case that can not be broken up with atropine is indicative of syphilis. He thinks that because K. I. or mercury seem to be of benefit in a given case that we should be careful about believing it syphilis without other corroborative evidences. He called attention to Tournier's use of mercurial ointment on gauze which is worn over those parts of the body having the least hair. These gauze plasters are worn without being changed for several days.

Dr. E. W. Stevens, of Denver. His experience had led him to doubt very much the diagnostic value of K. I. He was favorable to the way Gowers gave it, i. e., energetically but intermittently, so as to avoid the patients acquiring a tolerance for it. He called attention to the value of murcurial inunctions and of the necessity of having it rubbed in. He spoke of a case of iritis coming on in the latter part of the secondary stage concomitant with a skin rash, rapidly followed by tertiary symptoms. She died in six months, no treatment seemed to be of any avail.

Dr. Friedmann saw a case of malignant syphilis. Death in nine months—extra genital lesion.

Dr. Wm. C. Bane, of Denver, spoke of a man who had severe headache. He corrected an error of refraction. No relief. Put him upon protoiodide with relief of headache. And continuance of protoiodide gave permanent relief. He spoke of another case, that of a young lady with headaches and while refracting her he put her upon protoiodide with relief of her headaches.

Dr. Coover asked Dr. Bane why he used protoiodide?

Dr. Bane said because he got good results from it.

Dr. Melville Black, of Denver, called attention to iritis as a frequent accompaniment of the early secondary stage, and frequently associated with a pustular syphilide. He also said that pustular syphilides were almost always associated with eye complications, either at the time of the eruption or later. He referred to his remarks before the society at a meeting last year, where he urged against making a diagnosis of syphilis solely because anti-specific treatment was beneficial. He said he knew of several cases of syphilomania induced by physicians being indiscreet in making diagnoses of syphilis when it was very doubtful if such a condition ever existed. He felt that some day many obscure symptoms that are now ascribed to syphilis will be accounted for by definite non-specific lesions, and our present habit of ascribing them to syphilis be excused on the ground of ignorance. He believed in the value of the Hot Springs method of treatment, e. g., inunctions of ung. hydrarg. daily by a professional rubber of from ⅛ to ¼ oz. The mercury is rubbed into the back by a very slow rotary movement. It requires about a half hour to rub it all in. The patient is given at the same time K. I. internally in increasing doses, and is required to drink large quantities of water and to take hot baths. "I carry out this method of treatment at the patient's home most successfully, and believe that the external manifestations of syphilis are removed much quicker than by any other method of treatment." Mercury, he said, could be rubbed into the back daily for an indefinite period if the rubbing is gentle and the movements very slow. If much friction is produced the part becomes sore.

Dr. Edward Jackson, of Denver, has seen three cases of Argyll Robertson's pupil, none of whom had any other symptoms of degeneration of the nervous system. Two cases gave history of syphilis, the other case did not but had symptoms of syphilis. He thinks the A. R. pupil with absence of tabes indicative of syphilis.

Dr. Coover reported his case of exophthalmus shown at the last meeting as being pregnant. He also reported that the case of corneal ulcer shown two meetings ago never improved until he put her upon K. I. and bichloride. He reported the case of a man with lamellar cataract seen a number of years ago, who then had vision of 20-50.

He came again lately stating that he would have to give up his position (clerk) if he could not be made to see better. His vision was still 20-50 and no change manifest in the appearance of the lenses. He wants to know if he should ripen lenses and extract, or extract without ripening, or perform an iridectomy to give him a pupil over his clear peripheral lens.

Jackson would extract lens. Thinks iridectomy is disappointing in such cases.

Friedman called attention to Hjort's use of spectacles made of perforated brass plates instead of lenses.

Jackson spoke of a case of his who had seen John Green and had been given eupthalmine and cocaine. When used in the morning its effect would last until evening. This patient's vision was improved by looking through closed hands to make a tube. So he (Jackson) had some tubes made for him, but they were not satisfactory, and gave way to 1-20000 sol. atropine used once daily. This gave him much satisfaction. He would advise the use of it in Coover's case.

The name of the society was changed from the Denver Ophthalmological Society to the Colorado Ophthalmological Society.

Melville Black, M. D., Secretary.

COLORADO OPHTHALMOLOGICAL SOCIETY.

Meeting of March 15, 1902. Dr. E. M. Marbourg, of Pueblo, in the Chair.

Subject for discussion, *Interstitial Corneal Lesions.*

Dr. E. M. Marbourg, of Pueblo, read the following paper, entitled "*Syphilitic Corneal Lesions.*" There is one lesion of the cornea which is almost so surely of specific origin that from it alone one might safely make a diagnosis of congenital syphilis, and that is interstitial keratitis. This disease as late as 1854 traveled under many cognomens, no one seeming to be able to properly classify it, until it fell to the lot of Jonathan Hutchinson to take up the task. He it was who, after painstaking research, drew attention to that diagnostic condition which has coupled his name to it, and that is "Hutchinson teeth," thus segregating it from those diseases which are of specific origin. McKenzie describes this form of keratitis as scrofulous keratitis, giving a beautiful pen picture of it, as well as outlining the same treatment which we today use. But although the symptomatology and treatment are above criticism, yet the etiology is vague. And now in later days the name scrofulous keratitis has been transferred to another corneal affection, viz.: phlyctenular keratitis, which is not specific in any respect, but rather malarial, if we consider quinine in any manner as a diagnostic agent. He mentioned this, as it is a rare thing in medical nomenclature for the name of a disease to be absolutely transferred to another lesion.

Interstitial keratitis is found at the average of 10 years, usually not after 18 years, although he has had one case where the age of the patient was 37 years. As he had this case under his care long enough to see it run a typical course, there was no question as to the diagnosis.

More cases occur among females than males, but he feels that this increased ratio is rather of sexual (in the sense of gender) causation, since interstitial keratitis is frequently seen in connection with amenorrhoea. A few case have been collected by different observers which show that occasionally this lesion can occur as a symptom of acquired syphilis.

The patient comes to us complaining of a fogginess of vision, with not a large amount of pain in the eye or eyes, and this latter is largely dependent upon the stages of the disease in which the patient applies for relief, as the onset is rarely binocular. As a consequence, we must expect to find one eye in a more advanced stage of inflammatory infiltration than the other eye. And this is an important fact to be noticed, since this disease bears in its treatment a peculiar parallel to its progenitor. Photophobia is not marked. The cornea presents a peculiar grayish (in the earlier stages) ground-glass appearance, with here and there points of foci. The cornea has lost its gloss and there seems to be a roughened condition of the epithelium due to the plastic exudate between the layers. And then again this deposit may be found only upon the posterior layer, but in the earlier stages we have the same uniform gray haze. This infiltration may start at any part of the cornea, but eventually covers it entirely excepting that a small section of clear peripheral cornea may be found in some cases. The beginning deposit may be punctate, circular, or even crescentric, and in the latter case starts at the corneal margin. Some conjunctival and sclerotic congestion is present, yet this varies markedly in the different cases. The beginning haze rapidly increases both as to area and intensity, so that in about two or three weeks the entire cornea has become involved. There is now an increased scleral congestion, and more intolerance of light, with pain around the orbit. In about four to eight weeks the other eye becomes involved and rapidly (indeed, more so than the other) passes to the stage of complete involvement of the cornea. Our patient has now reached the point where only light perception remains. For some weeks the disease is apparently stationary, but in about eighteen months a marked change as to clearing up has taken place. The amount of clearness of cornea resulting depends both upon the severity of the attack and its recognition by the physician. In the worst cases the opacity, in what one might call the middle stage, of the cornea assumes a salmon color, due to the marked vascularity of the cornea. Then when the cornea does clear up, as far as corneal tissue goes, we still have the arch-enemy of corneal transparency, "red blood," to deal with. In other cases where vascularity has been a minimum, almost complete transparency has been recovered. The patient must have confidence in his medical adviser, and be willing to look forward to days and weeks of apparent blindness, for in this disease, only in the stage of absorption may we attempt to hasten the progress. All that we can do in the earlier and middle stages is to guide the progress of the inflammatory process in those channels which will promise the best ultimate results.

Dr. David H. Coover, of Denver, read the following paper, entitled "*Corneal Complications in Episcleritis and Scleritits*. The corneal lesions are most difficult to treat, for we have the chief factor, the extra corneal disease, in these lesions to deal with, which is tedious and baffling in its course, disappearing and reappearing in different locations on the eyeball. The inflammatory nodule or swelling may appear at the corneal margin or over one of the tendons of the recti muscles and spreading to the sclera-corneal margins. The nodule may come singly or they may surround the whole circumcorneal zone. The involvement of the cornea does not occur until there is some disturbance in its nutrition, then the cornea becomes hazy at the seat of the nodules, or small patches of infiltrations occur in the deeper layers and they coalesce until the whole cornea becomes opaque. These patches never form into pus, but gradually absorb as the corneal nutrition is restored. The greater the involvement of the corneal zone, the denser is the opacity and the more the vision is obscured.

In the treatment of these corneal lesions our aim must be to get at the exciting cause, and cure the disease that is producing the opacity. If it be a rheumatic or gouty diathesis, syphilitic or scrofulous taint, or some menstrual disorder, treat it with such remedies as act upon these constitutional affections. Local remedies have little or no effect upon the corneal complications. When these measures fail we have an operative procedure, *peritomy*, that is effective and curative. Denude the sclera of its covering from 3 to 5 mm. back from the corneal margin, and, if necessary, curette to encourage free hemorrhage. If only part of the sclera-corneal margin is involved, peritomize the part affected. If the whole corneal zone is involved, go clear round it. The reaction is slight and improvement very gratifying.

Dr. Edward Jackson, of Denver, spoke as follows upon *Interstitial Lesions of the Cornea.* He called attention to the statement of Dela Personne that the majority of interstitial lesions of the cornea were of non-specific origin. Before the work of Hutchinson they were all considered to be scrofulous. He has seen several cases due to tuberculosis, and recalls that they were not vascular like the specific forms. The vessels in the cornea, when present, were deep and very large. He recalls esepcially a girl of 18 that he saw many years ago. She was tubercular. The cornea contained marginal cheesy masses that were deep, that never broke down. Blindness came on later from intraocular lesions. He has seen a case of interstitial keratitis after herpes zoster in two cases. The keratitis of trachoma is many times interstitial. The vascularity is in its origin superficial, and later may be deep. In all forms the course is very slow, the tissue involved being closely allied to white fibrous tissue and does not regain its normal equilibrium quickly. The specific forms of interstitial keratitis are more vascular than the non-specific.

Dr. William C. Bane, of Denver, reported a case of *Herpes Zoster Ophthalmicus* treated as facial erysipelas. Episcleritis three months later. Mr. A. D., aged 72, of Kansas City, Mo., was stopping in Colorado Springs in September, 1901, where he developed an inflammation of the right eye. He stated that he had an inflammation of the right side of his face the previous June and was treated for facial erysipelas. The attack in June began as a soreness in the outer portion of right brow, then on the right half of upper lip, on the ala of the nose and near the bridge. Another spot appeared an inch below the outer angle of right eye. Several spots on the right temple on a level with the ear. No vesicles appeared on the ear, though it was considerably swollen. The right eye was inflamed near the outer angle, and had a scratchy feeling. Upon examination I found on the sclera at upper and outer and also inner margin of the right cornea a small elevation or nodule 3 mm. in diameter. The episcleral tissue in the region of the nodule was somewhat congested. Patient complained of some dull pain and tenderness in the right temple. He remained under my care about eleven days, when he returned to his home in Kansas City and placed himself under the care of Dr. J. H. Thompson. The upper nodule broke down in an ulcer on the eighth day, and was still open, though not extending, when he went home. A letter received from Dr. Thompson a few days ago states, "You and I agree on the diagnosis. It took me at least a month to heal the ulcer. I found the reparative powers very much reduced by the disease of the fifth nerve."

Dr. D. H. Coover, of Denver, showed *four cases upon whom he was using injections of salt solution subconjunctivally.* The cases in which the solutions were tried are as follows:

No. 1. A case of chronic irido-cyclitis with opacities of the cornea. The opacity was superficial, involving the lower half of the left cornea, except in the center of the cornea there was a tendency to ulceration. There was a very marked ciliary congestion, slight ciliary tenderness, pupil fixed, did not respond to atropin, either in solution or crystal, and not to eserin in one-half to one per cent solution, either before or after leaching. Tension — 1, vision reduced to light perception. Constitutional and local treatment failed. Injection of one per cent salt solution was given daily. After the third injection there was a marked decrease in the ciliary injection. Noticed slight improvement in the corneal opacity, pupil responded more to the action of atropin. Tension increased to + 1 after the injection. Eye felt more comfortable, ciliary tenderness disappeared, felt disposed to keep the eye open rather than closed. A few minutes after the injection objects appeared to be plainer. This case has had seventeen injections and is now entirely free from ciliary congestion. There is still some opacity of the cornea remaining.

No. 2. That of a very indolent ulcer situated at the inner corneal margin, in which every form of treatment was tried in the past six months and failed to make any progress whatever. On March 1st I began the injection of one per cent of salt solution. After the fourth injection I noticed the bottom of the ulcer instead of being clear was beginning to become cloudy, and the blood vessels seemed more prominent on the edge of the ulcer, near the limbus, and were extending more into the ulcer. It looked to me as though nature was beginning to make some repair and that the lymphatic circulation was beginning to be more active. This repair has been keeping up and the ulcer is gradually filling. The eye has had nine injections of the salt solution.

No. 3 A case of descemetitis or uveitis in which there was a marked ciliary injection with punctate deposit upon the Descemet's membrane. Pupil adherent to capsule and also to a leucoma situated on the cornea in the outer quadrant. Vision reduced to 5-150; salt injections were administered sub-conjunctionally, and after the third injection vision rose to 8-150; after the fourth injection, vision 10-150. Descemetitis clearing. Pupil was more sensitive to the influence of atropin after the injections than before.

No. 4. That of opacities of the vitreous in right eye due to hemorrhage of three months' standing. Has been under treatment for past four weeks and has been taking 60 grains of iodide daily without any effect upon the opacities. Last Monday I saw the case for the first time, and decided to use injection of salt solution in conjunction with iodide of potassium, which she had already been using. Two injections were given. The state of her vision before the injection was 20-70. The next day, after first injection, her vision rose to 20-50. After the second injection vision rose to 20-40. Vitreous seemed clearer and fundus very indistinctly seen. The injection in this case produced so much reaction that I had to abandon it for a few days. In the other cases where the salt solution was tried there was produced little or no reaction beyond a slight soreness, which passed off in a few hours. The amount of salt solution injected amounted in each case to from 20 to 30 minims at each sitting.

Dr. Melville Black, of Denver, reported a case of *sclero-keratitis* in a boy 10 years of age. His parents are both in perfect physical condition, and gave no history that would cast a shadow upon it. The boy is a perfect specimen of health, and a physical examination showed that all his organs were acting normally. He first saw this boy thirteen months ago, when he gave the following history. His right eye has been red for the past few days. It pains him when he reads. He was hit on the external rim of the right orbit a short time before the eye began to annoy him. The wound was small and healed quickly, leaving a small scar.

Examination of his right eye: Deep blush surrounding cornea, but is not sufficiently marked to be considered pathological. The iris has more yellow in it than its fellow, which is blue. The mother says this appearance of difference in the color of irides is congenital. His error of refraction under atropine was O. D. V. $\frac{5}{20}$: $\frac{5}{6}$ + W. + 1.00 ⊃ + .75 cyl. ax. 90 O. S. V. $\frac{5}{40}$: $\frac{5}{6}$ + W. + 1.25 ⊃ + .75 cyl. ax. 105. He was given for constant use O. D. + 1.25 ⊃ — .75 cyl. ax. 180. O. S. + .150 ⊃ — .75 cyl. ax. 15. Thirteen days later he came in with his mother, who was alarmed because of the appearance of two vessels running from the outer conjunctival fornix towards the cornea to within 4 mm. of its temporal margin, where they suddenly dipped into the sclera. Upon very close examination of the cornea by artificial light and oblique illumination with the aid of a magnifier a very small nebulous spot could be made out about 1 mm. from the corneal limbus. This opacity was in the substancia propria of the cornea. The parents were advised to keep the boy out of school. He was given a pair of No. 2 smoked lenses to be worn over his regular lenses. No treatment instituted. He saw him from time to time during the summer. The eye improved slowly without any treatment. In August he made a record that the corneal opacity had entirely disappeared, but that the dilated blood vessels were still present, but not so conspicuous.

On September 10th a record was made as follows: Within the last few days the eye has become suddenly worse. The cornea is now quite markedly involved, the temporal quadrant being occupied by nebulous clouds and fine blood vessels. The two vessels on sclera are larger than ever. He was placed upon increasing doses of hydraodic acid internally, and locally atropine was used once daily. On October 5th I made another note as follows: There has been no improvement. Today for the first time there are present twin spots about the size of pin points in the center of the cornea. The treatment has not been changed. No improvement or change in the condition of the eye took place during the short time that he was under my care after this, as the mother arranged to go to Philadelphia. Dr. Black gave the mother a letter to Dr. Harlan, to whom she took the boy after arriving in Philadelphia. He later received the following letter from Dr. Harlan:

Philadelphia, October 25, 1901.

Dear Dr. Black: Thank you for your letter in regard to Mrs. ——'s son. The pathology of the case seems very obscure and the prognosis doubtful. This is about as far as I have got. An expert examination of the urine and blood sheds no light upon the case—only a slight deficiency of hemoglobin in blood. It don't seem likely that the blow on the orbit could have any connection with the condition of the cornea, and, like yourself, I have failed to detect any satisfactory constitutional cause. Very sincerly yours,

GEO. C. HARLAN.

He reeived another letter from Dr. Harlan yesterday in response to a letter asking how our patient was getting along. He would like you to read this letter because it goes to show how very stubborn this case has been.

Philadelphia, March 10, 1902.

Dear Dr. Black: Your patient is, I think, improving slowly. The corneal opacity is much less dense, and seems to be clearing from the margin towards the center. In the center of the cornea, however, the haziness has increased somewhat in extent, but not in density. The two small specks to which you called attention in your letter are now connected with the main patch, and a third spot has appeared recently in the median line and higher up, seen only by oblique illumination. As I have said, the whole opacity is less dense, and periphery of the cornea entirely clear, but there are several small spots that have a calcareous appearance. I am entirely at sea as to the etiology of the case. He is taking a pill of biniodide, arsenic and iron, and for a time had iod. pot. and later sod. salicylate. Locally atropine and adrenaline and hot stupes and careful screening of the eye from the light. His general condition is excellent. There is still one enlarged conjunctival vessel, but no corneal vascularity. I am sorry I cannot help you in the matter of pathology. Very sincerely yours, GEO. C. HARLAN.

Discussion.—Dr. A. C. Friedmann, of Colorado Springs, said the Germans called the hereditary syphilitic forms of interstitial keratitis "profounda specifica," and that interstitial and parenchymatous were synonymous terms. The corneal involvement may be very deep or superficial. He has found anti-syphilitic treatment of no specific value. He remembers only one exception; that of a child who had a diffused parenchymatous keratitis in one eye and a punctate keratitis or descemetitis in the other. She was put upon guaiacol because of a scrofulous appearance and history. An ulcer formed that had a milky appearance with some calcareous changes. The ulcer cleared up, but the former condition remained. The father finally acknowledged syphilis. He then put the child upon antisyphilitic treatment and was rewarded by immediate improvement in the condition of her eyes. She made a very fair recovery.

Dr. E. R. Neeper, of Colorado Springs, called attention to latent tubercular tendencies being more prone to cause interstitial corneal lesions than active tuberculosis.

Dr. E. M. Marbourg, of Pueblo, agrees with Dr. Jackson that we see many lesions of the cernea not caused by syphilis. He saw a man a short time ago who had inflammatory rheumatism with interstitial keratitis. It ran a very rapid course, clearing up in a few weeks' time.

Dr. Jackson remembers a case due to hereditary syphilis that ran a rapid course and cleared up. He thinks anti-syphilitic treatment is not a specific treatment for interstitial keratitis. He is inclined to think such treatment is of value, but not in the way we usually consider it. He once saw a typical form of interstitial keratitis from hereditary syphilis follow an attack of inflammatory rheumatism. The corneal disease was very chronic. Mercury did more good than anything else. In the acquired type he has never seen it assume the typical form of the hereditary. He has seen three cases of hereditary interstitial keratitis occur in patients between 20 and 25 years of age. He thinks most cases occur about the time of puberty. He has seen a number of them attended with disease of the labyrinth of the ear. The ear trouble did not improve. The prognosis in the hereditary specific forms is usually good.

Dr. D. H. Coover, of Denver, said the references to tubercular forms of interstitial keratitis reminded him of a case of keratomalacia in a girl 21 years of age who was tubercular. Her cornea became opaque and rapidly softened and melted away, all taking place in two or three weeks' time. He had found that the mixed treatment caused his specific cases to thrive physically, with corresponding improvement in the corneal disease.

Dr. Jackson, in referring to Dr. Black's case, said he had seen the case with Dr. Black, and while he did not think of it then, he had since thought that there might be a nerve element in the case. He had seen malarial cases with involvement of the fifth nerve in which one quadrant of the cornea alone was involved.

Dr. J. A. Patterson, of Colorado Springs, suggests the possibility of pilocarpine being of value in specific cases of interstitial keratitis. It is known to be good in specific labryinthian lesions, and he does not see why it should not be good in corneal lesions. In Dr. Black's case he thought the injury to the rim of the orbit preceding the ocular disturbance was worthy of consideration; that a nerve lesion may have occurred that later became responsible for trophic neurosis of the cornea.

Dr. Neeper suggested an analytical examination of the aqueous in some of these obscure cases. A systematic study of this fluid might throw light upon their present etiological obscurity.

MELVILLE BLACK, Secretary.

SECTION ON OPHTHALMOLOGY.

COLLEGE OF PHYSICIANS OF PHILADELPHIA.

Meeting, March 18, 1902. Dr. William Thomson, Chairman, presiding.

Dr. William Campbell Posey exhibited a case of *Tubercle of the Iris*, occurring in a colored child 6 years old. The growth appeared eight weeks previously, and when first seen, four weeks later, was in the form of a small yellowish-white nodule situated at the periphery of the iris in its upper, inner quadrant. The child was otherwise healthy, and, although there was some roughness in breathing, no other evidences of tuberculosis existed. The family history was good. Notwithstanding the administration of cod-liver oil and mercurial inunctions, and the local application of atropin and boracic acid, the tubercle slowly extended, so that it reached the size of a large pea. Until one week prior to the presentation, the tubercle had remained intact, but at that time a quantity of free lymph had appeared in the anterior chamber, which was thought to be due to a rupture of the mass. Enucleation was advised, at which time experimental inoculation of guinea-pigs would be tried.

Dr. Posey also showed a *Coquille to Aid in the Detection of Diplopia*. It consisted of colored glass of such a shape that it covered the orbit thoroughly, and permitted the examiner to ascertain the movements of the eyes at the extreme limits of their rotation in all parts of the field, without the necessity of removing the glass from the eye.

Dr. James Thorington exhibited the *De Zeng Luminous Retinoscope*, which consists of the ordinary plane mirror illuminated by a 2-candlepower electric lamp placed in a small tube at an angle of 60° with the handle, the mirror itself being at an angle of 25°. Between the mirror and the lamp is a 52 D biconvex lens, placed in the tube, and separated from the light by a diaphragm. The lens may be moved toward or away from the light, which permits the rays to be reflected convergently or divergently from the mirror. In this way the retinoscope may be used either as a plane or concave mirror. The current is supplied by three small, dry cells. The great advantage of the instrument is its portability, in addition to which there is greater illumination with the absence of heat, no light falls into the observer's eye as when using the concave mirror, and the light may be used in the dark-room to find the lenses in the trial case.

Carcinoma of the Eyelids, with Secondary Involvement of the Eyeball: Removal of Growth by Extensive Plastic Operations; Recurrence.—Drs. William Campbell Posey and Edward A. Shumway detailed the history of the growth, which occurred in a female, 61 years old. It began as a small pimple on the lower lid, and gradually extended until the lower lid and all but the middle third of the upper lid was destroyed. The tumor was completely removed and the denuded areas filled in by an extensive plastic operation. Union of the flaps was rapid and the eyeball, which was in a state of glaucoma, was unaffected by the operation. Several months later there was recurrence of the carcinoma in the lids, and, by reason of a union of the lids with the eyeball, the globe itself became secondarily involved by it. As a consequence, enucleation and evisceration of the orbital contents were necessitated. Pathologic examination showed that the eyelids were thickened to about twice their normal dimensions by a typical carcinoma of the skin, the disease having extended to the conjunctival surface. The cornea was infiltrated throughout with epithelial cells, and was covered with a thick fungous mass. The infiltration extended most deeply into the parenchyma, involving the scleral tissues as far as the insertion of the rectus muscles. The anterior chamber was shallow, and its angles obliterated by the attachment of the iris and cornea at the periphery. The choroid was detached from the sclera and its blood-vessels enormously distended. The optic nerve was deeply excavated.

Discussion.—Dr. Sweet referred to a case of extensive epithelioma of the eyelids, in which the disease had caused destruction of the right eyeball, and had spread half-way across the nose. Under 20 exposures by the X-rays, the diseased area had decreased one-half in size, and there was every indication of ultimate disappearance of the growth under the treatment. Sections from the tumor made after the fourth treatment showed intense infiltration of leucocytes, although there was at that time subsidence of the early inflammatory symptoms. Over 90 per cent of the cells were polymorphonuclear leucocytes, which were conspecuous in the cancer areas, around the blood-vessels, in the blood-vessel walls, and as intravascular marginal collections. The epithelial cells showed evident degeneration; the chromatin being fragmented at the periphery of the nucleus, and appearing as fine, irregular granules in the nucleus, with reduced intensity of stain reaction. The changes point to the possibility that the relief in cases treated by the X-rays is due to leucocytosis and not to trophic influences, as has been generally believed.

Bilateral Sympathectomy for Chronic Glaucoma, the Interval between the Operations being Six Weeks; Microscopic Examination of the Excised Ganglia.—Dr. G. E. de Schweinitz gave the history of a man, aged 23, suffering from chronic inflammatory glaucoma and bilateral horizontal nystagmus. Vision was reduced to hand movements in the temporal field of each eye, a little more accuracy on the right than on the left side. Ophthalmoscopically each disc was deeply cupped and atrophic; tension + 2 D. The field of vision obtained with two candles showed marked contraction, chiefly on the nasal side, and more on the left than on the right side, the dark area almost reaching the fixing point. The pupils were dilated to 6 mm. on the right and 8 mm. on the left side, and irresponsive to the action of light. They could be contracted with eserin to 3 and 4 mm. respectively, with a corresponding reduction in tension.

On December 18, 1901, at Dr. de Schweinitz's request, Drs. W. Joseph Hearn and J. Chalmers Da Costa removed the right superior sympathetic ganglion, reaching it by the posterior route. Immediately at the conclusion of the operation the right pupil contracted to 3 mm. and even less, and the tension, if anything, was slightly diminished. This myosis and slightly lowered tension continued for three days, when the eyeball again exhibited increased intraocular tension and the pupil began to dilate. The patient recovered from the operation without untoward symptoms, with the exception of moderate dysphagia, which lasted for 24 hours, and slight ptosis. Enophthalmos and unilateral sweating were not noticed. Nine days after operation the field of vision was very slightly enlarged, as compared with the visual field prior to the operation, and the patient could discern the outstretched fingers in the temporal field—a slight improvement, therefore, over the vision which obtained before the ganglion was excised, but not better than the vision which resulted after the use of eserin. One month after the operation the same degree of vision continued, and sometimes in good lights the patient was able to decipher Snellen C at 12 inches; but if eserin was discontinued, there was immediately a return of increased intraocular tension with dilatation of the pupil.

On January 31, 1902, Drs. Hearn and Da Costa excised the left superior sympathetic ganglion. The effect of the operation, so far as the eye is concerned, was negative and was followed neither by decrease in intraocular tension nor myosis. Recovery from the operation was uneventful. The patient has not been seen since February 18; that is, two months after the first operation and a little less than three weeks after the second operation, when vision was unchanged, the tension increased, and the pupils dilated unless the eyes were kept under the influence of a myotic.

It would, therefore, seem that in this case, the operations accomplished nothing more than was secured with eserin.

The microscopic examination of the excised ganglia yielded identical results—namely, an eccentric position of the nuclei of many of the ganglion cells, which may be considered as one of the first stages of cellular alteration. It is possible that in some places there may be a slight sclerotic change, or connective-tissue induration, but it is not marked and never striking.

The pathologic changes of the ganglia excised by Dr. J. M. Ball consisted of marked hyperplasia of the connective tissue, the general aspect being that of a decided sclerosis originating in inflammatory processes going on in, and starting out from, the walls of the vascular structures. The ganglionic cells were pigmented and showed different degrees of degeneration, the nuclei usually assuming the parietal position. The changes in the nervous elements were considered by Dr. Ball as most likely not idiopathic, but due to pressure and inhibition—inhibited nutrition. Axenfeld has examined five excised ganglia, and, in general terms, found a more or less pronounced connective-tissue induration, especially of the adventitious connective tissue. Increase of lymphocytes was found in only a few places. Destruction of the nervous elements was not demonstrated. The pigmentation and fatty infiltration of the ganglion cells was not more pronounced than is common in elderly people. In Cutler's specimen the ganglion cells were pigmented and the chromophilic bodies were not of normal size. There was a growth of connective tissue between the ganglion cells.

Discussion.—As to the probability of the permanency of the myosis following excision of the ganglia, Dr. Harlan referred to a patient he had shown before the Section two years ago, of myosis of the right eye following gunshot injury of the right cervical sympathetic five years before. The pupil of the injured side still remained small. Dr. Hansell said that, through the courtesy of Dr. de Schweinitz, he was present at the first operation and had the opportunity of verifying the contraction of the pupil immediately after the removal of the ganglion. He was in accord with the writer's concluding sentence—namely, that the operation is justifiable after all other means of cure have been tried and failed. The large majority of reported cases show that the operation has made no permanent improvement, and that the unfavorable progress of the disease is only temporarily checked. However, the few cases of success warrant the performance of the operation in suitable cases.

Dr. G. C. Harlan showed the eye of a negro boy, 15 years of age, removed for *Congenital Glaucoma.* Both eyes were buphthalmic and sightless. There was no history except that the eyes had always been defective and the left recently painful. The sclerotic and cornea were much distended. The diameter of the latter measured 15 mm. and it was bulging so extensively that the case was at first recorded as one of keratoglobus. The anterior chamber was deep, the pupil widely dilated and immovable, and the lens opaque and of a bright yellow color and its lower quadrant was covered by fresh hemorrhage. This hemorrhage seems to have been connected with the pain, though the tension was decreased as compared with that of the other eye. The eye was enucleated for the relief of the pain. Examination of the specimen showed complete separation of the retina, the disc cupped, and the lens undergoing calcareous degeneration. The interesting point is the crowding of the base of the iris into the anterior chamber, where it is molded into the angle and sharply bent as it passes over into its normal plane. As suggested by Treacher Collins, this is probably a fault of development—failure in the separation of these structures—rather than a product of disease, and the disorganization of the eyeball is a result of this imperfect development.

Two Cases of Glaucoma.—Dr. H. F. Hansell described the clinical and microscopic points of interest in, first, glaucoma following hemorrhagic retinitis; and, second, primary absolute glaucoma in which profuse and destructive hemorrhage followed iridectomy. In the former, he stated as his belief that the increased tension and resultant complete blindness were due to the disturbance or interruption in the nutrition of the eye from pathologic changes in the circulatory and lymph systems, and not to the presence of blood in the retina, and that the glaucoma was only a symptom or a local manifestation of the general disease of the blood-vessel walls. The microscopic sections showed the blood in the fibrous layer of the retina and on its surface, the comparative immunity of the choroidal vessels from participation in the affection, the presence of endarteritis proliferans of the retinal vessels, the forward dislocation of the opaque lens, the total obstruction by the root of the iris of the angle of the anterior chamber, and the complete closure of parts of the canal of Schlem. In the latter, the great mass of blood occupied the vitreous chamber and was bounded in front by the choroid and on all other sides by the sclera. The choroid was almost wholly detached from the sclera, pushed forward against the iris, and broken and torn in many places by the sudden and violent hemorrhage. The retina, with the exception of a few fragments, was entirely destroyed. The nerve-head was deeply cupped and the excavation filled with a clot. In glaucoma secondary to retinal hemorrhage the microscopic examinations that have been published show endarteritis and phlebitis proliferans and thrombi as the common pathologic conditions of the vessels. In hemorrhage following operation the source of the blood in the case described was undoubtedly rupture of the choroidal vessels.

Discussion.—As evidencing the pathologic changes occurring in the anterior portions of the eyeball in glaucoma, Dr. de Schweinitz showed sections of eyeballs removed for the disease, in all of which the interference with the excreting channels was well seen. One specimen in particular showed the futility of even large iridectomy after adhesive inflammation had taken place, the filtration angle being occluded by the root of the iris which the excision of a large piece of the iris had failed to remove. Dr. de Schweinitz's sections also showed the optic nerve changes in glaucoma, particularly the formation of the excavation. One section afforded a good demonstration of the formation of the so-called "kettle-shaped" excavation.

Dr. John T. Carpenter reported the clinical history of a diabetic patient with *Rapid Changes in Refraction Accompanying Variations in the Amount of Sugar in the Urine.* This patient, aged 51, had consulted him six years before on account of presbyopia. In February, 1901, there was inability to see clearly at a distance or to read the largest sized type with her reading glasses, which, until a few weeks before, had been entirely comfortable, the refraction having changed from a slight myopic astigmatism to hypermetropia: R. E., + 1.50 D = 6-6 V.; L. E., + 2.50 D = 6-6 V. With + 2.25 added, reads J. 1, at 30 cm. About four weeks previously the urine contained large amounts of sugar, which greatly lessened under suitable treatment and rigid diet. With this improvement vision rapidly failed. Examination showed media clear, fundus healthy, and the remarkable change in the refraction above noted. These lenses were given temporarily. In three weeks vision blurred with glasses, the hypermetropia changing to a myopia of 0.50 D. Upon the return to liberal diet vision again failed. The final result was the return to the low myopic astigmatism. Dr. Carpenter referred to the rarity of this condition in glycosuria, and mentioned as the only references Risley's paper read before the American Ophthalmological Society in 1897, and Grimsdale's paper read before the Ophthalmological Society of the United Kingdom in 1899. He attributed the rapid changes of refraction to alterations in the refractive index of the lens, although no thoroughly satisfactory explanation of these cases has yet been advanced.

WILLIAM M. SWEET,
Clerk of Section.

OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM.

Friday, March 14, 1902.

W. Adams Frost, F. R. C. S., Vice-president, in the Chair.

Symmetrical Concentric Folds of Choroid and Retina in Four Cases of Unusually High Myopia.—Mr. Lawford Knaggs (Leeds) read a paper on a condition occasionally seen in highly myopic eyes. The appearance presented was that of a crescent having a sharp, dark edge. It was always situated on the nasal side of the disc and at varying distances from it, and when both eyes were affected the condition was symmetrical. It was vertically placed and its concavity faced the disc. It was two, three or four times the diameter of the disc in height.

The condition producing this appearance was a folding back of the choroid and retina upon itself towards the disc; in other words, there was a detachment of both tunics from the sclerotic. The dark edge was due to the increased thickness of pigment at the summit of the fold, where it turned around upon itself. Vessels curved around the fold as around the edge of a glaucoma cup.

The appearance had been met with in four cases. Both eyes were affected in three and in the other one eye had been lost from accident.

The measure of myopia varied from — 18 D to — 38 D, neglecting astigmatism. In one eye there was a rent on the anterior surface of the fold through both tunics, showing the sclerotic, and the edges were turned towards the vitreous. In another there was a wrinkle of both coats on the nasal side of the crescent and parallel to it. In Haab's Atlas, Edition 1901, Fig. 79, a very similar appearance is shown, but is described as true staphyloma in a highly myopic eye.

The explanation was probably this. The anterior attachments of the choroid and retina stretching unduly in consequence of the elongation of the eyeball permitted the two inner tunics to slide back towards the posterior pole, but as they were both nailed to the sclerotic by the optic nerve, this sliding moment was checked by the obstruction and led to a reduplication of the coats within the area over which the obstruction was felt.

Membranous Conjunctivitis, with Cases.—Mr. W. H. H. Jessop read the notes of thirteen cases which had been treated as in-patients at St. Bartholomew's Hospital. All the cases had adherent membrane which left a raw surface when it was stripped off. Eight of these cases had the Klebs-Loeffler bacillus, giving the characteristic reactions. From a culture of three of the cases guinea pigs were inoculated, causing death in forty-eight hours and showing necrosis of tissue at the seat of inoculation and inflamed supra-renals. There was also enlargement of the neighboring lymphatic glands, the temperature was over 100°, albumen was present in the urine, but only one case had membrane in the fauces. In no case was there paralysis or paresis of the soft palate nor absence of knee-jerk.

The other five cases were tested several times for Klebs-Loeffler bacillus, but without success. Two had streptococcus pyogenes; two had staphylococcus albus and one staphylococcus aureus. None had albuminuria; only two had raised temperatures; two had enlarged glands, but none had membrane on the fauces.

The diagnosis between diphtheritic and nondiphtheritic membranous conjunctivitis can only be made bacteriologically. In these cases the clinical evidence of albuminuria, raised temperature, enlarged glands and signs of general diphtheria are a great aid in diagnosis. It is thus proved that all cases of membranous conjunctivitis are not diphtheritic and that the type of severe diphtheritic conjunctivitis mentioned in text books is rarely seen. The term membranous conjunctivitis, which is a convenient one, must be enlarged to include cases due to diphtheria and other organisms.

Diphtheria of the Conjunctiva.—Mr. Sydney Stephenson communicates notes of forty-three cases of conjunctivitis in which diphtheria bacilli were found. The cases formed 1.25 per cent of the ophthalmic patients seen in two hospitals for children. The average age was 26.7 months, but 88 per cent occurred in children under 4 years. The cases chiefly occurred during the first four months of the year and often there is a history of exposure to diphtheritic infection. 40 per cent of the children were bodily ill, although the series include but three examples of really severe diphtheria of the conjunctiva. In five cases there was albuminuria, while in two the knee-jerks were absent. Diphtheria of the fauces or nose preceded the conjunctival affection once, was associated with it twice and followed it once. Diphtheria of the skin was present in seven children. The preauricular and other glands were generally enlarged. The malady was unilateral in about three-fourths of the cases. Death occurred once. The infection was "pure" in 13.95 per cent and "mixed" in 86.04 per cent of the cases.

As regards treatment, Mr. Stephenson advised liberal and early doses of antitoxin with 1 in 5000 solution of corrosive sublimate applied to the conjunctiva by means of a small spray. He concluded that "croupous" and "diphtheritic" conjunctivitis were clinically and bacteriologically one and the same disorder.

After remarks by Mr. Brewerton and others, Mr. Jessop and Mr. Stephenson briefly replied.

The following card specimens were shown:

Mr. C. Hartridge: (a) *Ectropion of Uvea;* (b) *A Large Papilloma of Conjunctiva.*

Mr. H. Work Dodd: (a) *A Specimen of a Large Sarcoma of the Orbit which had probably commenced in the choroid and which had completely buried the eye. It was removed on account of pain, but the patient died shortly afterwards from secondary growths.* (b) *Calcareous Tumor of Orbit.*

Mr. J. Herbert Fisher: *Retinitis Circinata.*

Mr. J. Herbert Parsons: (a) *Degeneration of the Retina.* (b) *Arcus Senilis.*

Mr. Lawford: *Early Changes in the Retina following a Blow. These were present ten days after the injury.*

Mr. R. E. Bickerton: *Unusual Changes in the Choroid.*

C. Devereux Marshall, F. R. C. S.,
112 Harley street, London, W.

NEWS ITEMS.

Dr. A. B. Hale, of Chicago, intends spending the summer in Europe.

Dr. F. C. Hotz, of Chicago, and family will spend the summer in Europe.

The wife of Dr. Melville Black, of Denver, Col., has been seriously ill, but we understand that she is now improving.

Dr. Melville Black, of Denver, Col., has taken offices in the Majestic Building, corner of Sixteenth Street and Broadway.

Dr. Arthur N. Alling has been appointed Clinical Professor of Ophthalmology in the Medical Department of Yale University.

The annual meeting of the staff of the Blessing Hospital, Quincy, Ill., was held April 30th. Drs. Fred M. Pendleton and Frank E. Tull were appointed Oculists and Aurists.

The Board of Trustees of the New York Ophthalmic and Aural Institute have secured a suitable site for a new home of this institution not far from the College of Physicians and Surgeons.

Hospital for Blind School.—The new hospital building at the State School for the Blind, Lansing, which has been erected at a cost of about $8,000, has been accepted by the board of control.

Eye and Ear Hospital.—The annual meeting of the Eye, Ear, Nose and Throat Hospital, New Orleans, was held April 16. During the year 5,098 patients were treated, 1,149 of whom came from outside parishes. The officers were re-elected.

THE OPHTHALMIC RECORD regrets exceedingly to learn of the recent illness of Dr. Herman Knapp, of New York City. He was taken sick with pneumonia about the 1st of May. Fortunately the attack was limited to the left lower lobe, and he is now improving. Dr. Janeway has had charge of the case, and hopes for his ultimate recovery.

The Ophthalmologists of New York City tendered Prof. Haab, of Zurich, a banquet at Delmonico's Friday evening, May the 30th, at half after seven o'clock. The gentlemen having the affair in charge were Drs. David Webster, John E. Weeks and Wilbur B. Marple.

A unique wedding ceremony has just been celebrated in Brooklyn. Richard Fleming and Delphine Hinchman, both blind from birth, were married. The couple met only a few months ago, and are said by their friends to have been mutually attracted through the sounds of each other's voices. Fleming, despite his affliction, conducts a large manufacturing business.

Among the eye papers read at the Illinois State Medical Meeting, May 20th, we notice one by Dr. E. E. Clark, of Danville, upon "Dacryocystitis"; another by Dr. J. L. Firebaugh, of Robinson, on "Ophthalmia Neonatorum"; another by Dr. W. O. Nance, of Chicago, on "Nephritic Eye Lesions," and two papers on "Nystagmus," one by Dr. J. Whitfield Smith, of Bloomington, and the other by Dr. S. S. Crocker, of Chicago.

The fourteenth International Medical Congress will be opened in Madrid, Spain, April 23d, 1903. The American Committee of Arrangements has been appointed to take charge of American affairs in connection with the congress. Dr. O. F. Wadsworth, of Boston, President of the American Ophthalmological Society, has been appointed as the Ophthalmological representative.

The Ophthalmological Section of the American Medical Association will hold its annual banquet Tuesday evening, June 10th, at the Grand Union Hotel, Saratoga Springs. A strenuous effort will be made to sit down at the supper early. An effort has been made to depart somewhat from the stereotyped form of supper usually held, and something in the nature of a German meal will be offered, including Rhine wine, beer, etc.

One of the most important books of the year is entitled "Visual Economics," by Dr. H. Magnus, of Breslau, Germany, and Dr. H. V. Würdemann, of Milwaukee, Wis. The book is nicely printed, has about 150 pages, is well indexed, and is full of most instructive and comprehensive charts. It is the only authoritative book of this kind in existence, and should be used as an authoritative work by insurance companies, manufacturers, physicians, etc. The book should have a large sale and should be in the library of every ophthalmologist.

Improvement of Cincinnati Hospital.—The authority to issue bonds to the extent of $500,000 for the improvement of the Cincinnati Hospital having passed both Houses of the Legislature, Drs. Holmes and Isham and Mayor Fleischmann, of the Hospital Board, have been appointed a committee to devise plans of procedure for spending the money. Hon. Prescott Smith was appointed a committee of one to test the constitutionality of the act under which the allowance was granted, so that there may be nothing in the future to retard the progress of the new building contemplated.

The Baltimore Eye, Ear and Throat Charity Hospital reports for the past year 5,055 patients applying for treatment, 3,162 white and 1,873 colored. This is a nincrease of 8 per cent over last year. The cases were divided as follows: Eye department, 3,175; ear, 913; throat,. 837. The dispensary visits numbered 17,745, about 60 per day. The indoor department has been recognized, and there is now a corps of trained nurses who are always on duty. Nurses are obtained from one of the general hospitals, are given special instruction in the care of eye, ear and throat cases, and on the expiration of four months' service, if satisfactory, they receive a certificate. This is effected at but slight additional cost.

Spectacle-Fitting Not Practice of Medicine.—The Appellate Court of the Second District of Illinois, in the case of Smith vs. People, has decided that an itinerant oculist and spectacle-fitter is not engaged in the practice of medicine. The appellant advertised as the "Great Chicago Eye Expert," and his advertisement also contained the following: "If you have blurring, dizziness, neuralgia, headaches, spots before the eyes, inflammation, granulation, winking, trembling spells, cataract, burning and smarting of the eyes, various brain affections entailing not only positive injury to the sight, but untold misery, call immediately." The court reasons that this is not the practice of medicine; "the defendant did not cure any of these ailments; that whenever his patrons ceased using the glasses defendant had supplied to them, their prior troubles returned." The case has been carried to the Supreme Court.

A unique trust has been formed by the blind men of Cleveland, Ohio, numbering fifteen. The object of the trust is to obtain $100, which every needy blind man is entitled to by act of legislature, from the county commissioners. Attorneys have been employed by the combination to lay the matter before the city council, and, if necessary, take it into the courts. The $100 has never been paid, and the individual efforts of the blind men have proved ineffectual, hence the pooling of their issues. Under the act the trustees of every township are required to certify to the county commissioners the number of blind men in the township in need of assistance. The commissioners are then required to make a levy to meet the obligations.

Awarded the Boylston Prize.—Dr. Robert Lee Randolph, Associate Professor of Ophthalmology and Otology in the Johns Hopkins Medical School, has been awarded the Boylston prize by Harvard University for his essay entitled "The Role of the Toxins in Inflammations of the Eye." The contribution is experimental in character, and the author has been at work on it for the past two years in the pathologic laboratory of the University. Among other things the work shows that not only do the bacteria themselves produce inflammation when brought in contact with the eye, but that their toxins can produce it also. Many bacteria, however, have not the power to produce these soluble toxins. Dr. Randolph shows that our ideas on this subject need revision, and that many bacteria probably produce inflammation through the agency of properties which previous tests have failed to discover. It is also shown that many of the most serious external inflammations of the eye are caused not only by the presence of bacteria between the lids and eyeball, but that the harmful effects of these bacteria are rendered more certain if the individual should rub the eye when the infectious material flies into it. The rubbing removes the epithelial covering of the eyeball, and thus an entrance is made through which the bacteria, which are always present, can enter the tissues. For instance, when certain organisms suspended in sterile water are dropped continuously upon the normal eye of a rabbit, even for a considerable time, no inflammation results, but let a slight wound or abrasion of the eyeball be made and inflammation always follows. The practical bearing of this discovery is obvious. Eyes into which infectious or irritating substances have entered should never be rubbed, although the inclination to do this is usually very strong. The Boylston prize rarely finds its way out of New England. Dr. Randolph was awarded the Alvarenga prize by the University of Pennsylvania in 1900 for an experimental work on the crystalline lens. He was one of those who received the honorary degree of M. A. at the recent jubilee of the Johns Hopkins University.

Albert C. Corr, M. D., Chicago Medical College, 1868, one of the best-known practitioners of Central Illinois, formerly president of the State Board of Health, and president of the Illinois State Medical Society in 1896, died at his home in Carlinville, April 2d, after a short illness, aged 63. He was a member of the American Medical Association, and at the time of his death was in editorial charge of the eye and ear department of the Journal of the Southern Illinois Medical Society. The following are the resolutions of respect adopted by the Macoupin County Medical Society at the A. C. Corr memorial, held in Carlinville, April 4:

Whereas, In obedience to Nature's fixed and unalterable law of life and death, we must part from A. C. Corr, the nestor of our society, a charter member and one of its constant supporters, more than twenty-five years its secretary.

Resolved, That we mourn his loss as a brother physician, cut down while in active work for the cause of science and humanity.

Resolved, That we escort him to his last resting place, to await the coming of the Great Physician whose touch healeth all sorrow and pain.

Resolved, That a suitable floral emblem be placed upon his bier, as a public testimonial of our appreciation of his beautiful character as a friend, counsellor and Christian gentleman.

Resolved, That a copy of these resolutions be made of record and a copy be sent to the bereaved wife and partner.

Resolved, That a copy be sent to the city papers and to the state and national medical journals.

"Echoes From the Rainbow City," by Clarence J. Selby, is remarkable in that it is the work of a man who is blind, deaf and mute. Mr. Selby is a Chicagoan, and his book should serve to direct attention to his accomplishments, which are in many respects as notable as those of Laura Bridgman or Helen Keller. When he was seven years of age a disease of the eyes and ears robbed him of both sight and hearing. He was an unusually bright boy, "always craving for knowledge," as he says, and the calamity was the greater because no institution either for the deaf or for the blind was willing to undertake his education. Finally the nuns of Le Couteuix, at Buffalo, who taught deaf mutes, consented to undertake the task, and for ten years Sister Dositheus devoted herself to his education. Her patience and ingenuity have been rewarded to a wonderful degree, as anyone will admit upon reading Mr. Selby's book, which is a cheery and readable description of the Buffalo Exposition, written by a man who has had to depend upon the ears and eyes of others for his original impressions.

Yet not altogether upon others does he depend, as one notes in his animated description of the Streets of Cairo. “How pleasant it was to feel the sound of the beautiful music and the vibration of the foreign songs,” he says, “which, although I could not hear, sent a thrill through me as I touched the instruments which were being played.” He had a pleasant visit with Helen Keller at Buffalo. “We had a great laugh together,” he says, “when we spoke of Minerva, who sprang full of wisdom from the brain of Jove. We had both read the same books.” Mr. Selby's volume abounds in a pure and contagious enjoyment of the humorous and of the poetic, and there is not a complaining or embittered note in his pages. He has become a devout member of the church that has done so much for him. Bishop Muldoon and other Catholic notables, also Prof. John Dewey, of the University of Chicago, and Mrs. Carter H. Harrison, contribute letters vouching for the worthiness and ability of the young author.

There are several little poems in the volume, of which the following stanzas are an example of the best:

I live in an ideal world all my own;
  No mortal can share it with me;
Its mysteries to all will be ever unknown;
  No eyes its rare beauties can see.
My sky is the loveliest and brightest of blue;
  Its clouds are so misty and white;
The sun ever shines in my ideal world,
  And unknown is the darkness of night.

Not the least interesting feature of the little book is an inserted leaf showing the pin-prick type printing in which Mr. Selby writes. He sets the type in a frame and presses its protruding points through the paper by hand, producing letters that can be read equally well by touch or by sight. This is only one of several effective modes of communication in which he has been educated.

THE
OPHTHALMIC RECORD
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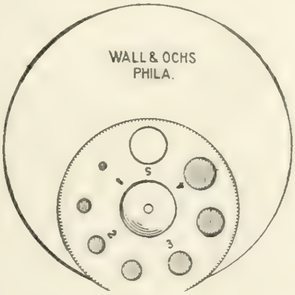
ORIGINAL ARTICLES.

A CHANGEABLE "STOP" DISC FOR SUBJECTIVE REFRACTION TESTS UNDER MYDRIASIS.

BY F. B. EATON, M. D.,
SAN FRANCISCO, CAL.

Illustrated.

This little device is intended to "stop" the pupil when the eye is under a cycloplegic, in order that during subjective testing of the refraction the real refraction, *i. e.*, in the visual zone, may be determined more quickly and accurately by preventing errors during the examination due to spherical aberration, irregular corneal curvature, etc.



In short, the intention is to approximate the ideal of complete cycloplegia with an undilated pupil.

The diaphragm fits the ordinary trial frames and optometer cells, and, as the cut shows, has a thin rotating disc by which perforations of 1 mm., 2 mm., etc., can be brought to the center of the large perforation in the diaphragm.

The plan followed, as described in THE OPHTHALMIC RECORD of January, 1902, is to note the size of the patient's pupil under fair illumination before dilatation, and to begin the tests with a larger sized perforation, ending and "proving up" with a smaller one which corresponds to the patient's average normal pupil.

The device has been carefully constructed by Messrs. Wall & Ochs, 1716 Chestnut Street, Philadelphia.

MONOCULAR VISION.

BY C. M. HOBBY, M. D.,
IOWA CITY, IOWA.

The persistence with which "Estimation of Distance" and "Perception of Relief," or appreciation of location in space, are considered as functions of "Binocular Vision" illustrates the tendency to govern observation by preconceived theory. It may be noted that the greater part of the evidence concerning a special binocular function in vision is drawn from the very interesting field of ocular illusions, and very little is derived from Comparative Anatomy, or direct experiments showing what monocular vision is capable of doing in the way of estimating distances. It is interesting to note that the question attracted the attention of some of he great observers and mathematicians of the past three hundred years, and Kepler, Boyle and Porterfield recognized the fallacy of attributing any part of the estimation of distance to a function of binocular vision. Haller, in the fifth volume of his great work on Physiology (1769), says:

"Monoculos distantias male æstimare non crediderim, cum aves adeo accurate ad destinatam prædam advolantes, pro monoculis ob oculos laterales haberi possint, et venatores uno oculo utantur, quorum interest, distantiam accurate nosse."

Not only is it a fact that men who have lost one eye in childhood are as capable of estimating distance correctly as those who have binocular vision, but in a considerable number of tests I have found that those possessing binocular vision are capable, with one eye covered, to at once estimate distances with very nearly the same accuracy as by using both eyes, and with a little practice, quite as accurately.

The same is true concerning the "Perception of Relief," which is as well appreciated by those who have always been limited to monocular vision as by those possessing binocular vision. That the assumed "flatness of field" of monocular vision is a myth can be easily found by trial. Of course it is impossible with one eye to blend slightly differing pictures on a flat surface by the stereoscopic process, and so secure the appearance of relief, but the illusion of relief, exactly like the illusion of the stereoscope is possible with one eye; and not only is it possible, but it is much easier to secure the illusiion with a photograph of a landscape by the use of one eye than by using both.

It would seem to the writer that the discussion of "Estimation of Distance" and "Perception of Relief" belong rather to psychology than to any department of physics.

A PUZZLING CASE OF INFECTION OF THE CONJUNCTIVA.

BY EDWARD P. MORROW, M. D.
Ophthalmologist to Aultman Hospital, Canton, Ohio.

The following report may be of as much interest to others as the case was perplexing to the writer.

J. W., referred to me by Dr. R. A. Biechele, Canton, Ohio, age 26, a horseshoer by occupation, was first seen the evening of April 11, 1902, presenting the following history and conditions. His right eye had been itching and burning all day and became so painful he thought best to do something, as it had troubled him for the past two days.

Upon inspection the lower half of the conjunctiva of the ball and the lower lid were found hyperæmic, presenting the appearance of a simple conjunctivitis, while the upper half of bulb and upper lid were normal in appearance. There was increased lachrymation, but no photophobia or discharge. There was observed midway between the inner margin of the cornea and the carnucle, upon the hyperæmic area, a perfectly circular white spot 3 mm. in diameter, with a distinct black point in the exact center, recalling the appearance of a recent wasp sting as seen upon the palm of the hand or sole of the foot. The patient called my attention to a swelling upon the right side of his face, which proved to be the right parotid gland, swollen and painful. He complained of extreme lassitude and of chilly sensations, and said "every bone in my body aches."

I was unable to get any history of injury or infection. He denied syphilis or a recent attack of gonorrhea. Not deeming the eye trouble serious, I advised him to make hot fomentations on reaching home and prescribed a biborate of sodium solution, placebo. Small doses of calomel were prescribed, to be followed with a saline in the morning and to report the following day if no better.

The afternoon of the next day he presented himself in great alarm over the intense swelling and pain in the eye. My impression, upon seeing the tense and glistening lids of the right eye, was that of a case of purulent conjunctivitis. Upon separating the lids I found that the upper lid moved quite readily, while the lower lid was tense and unyielding.

Surrounding the lower one-half of the cornea was a dense cord-like subconjunctival swelling having much the appearance of the chemosis seen in a purulent conjunctivitis, while above, the bulbar conjunctiva was only slightly hyperæmic. Upon everting the œdematous upper lid the appearance was striking, for the conjunctiva was absolutely normal.

The conjunctiva was thin, light colored, and the sharp edge of the tarsus forming the normal curve showed through the membrane more distinctly than usual, being pressed forward by the external swelling.

There was no discharge and but a moderate amount of lachrymation, no photophobia, no exophthalmus or dislocation of the globe laterally.

The patient was suffering intense pain in temporal and malar regions, the parotid gland was more swollen than on the previous day and still quite painful to touch. The general malaise was increased and he complained of great back and leg ache. The temperature by the mouth was 104° F. I questioned him again closely as to gonorrhea and insisted upon an examination, which proved negative.

He was ordered home and to bed, and instructed in the use of ice applications, which were to be continued until I should see him the following morning. When seen the following day the external swelling of the lids had subsided somewhat, but the subconjunctival swelling surrounding the lower half of the cornea presented the appearance of the day before, as did also the almost normal appearance of the upper half of ball and upper lid.

There was no discharge, and, save the drops ordered, there had been, up to this time, no direct application made to the conjunctiva.

At this time, however, a 20 per cent solution of protargol was applied to the entire conjunctival surface, and the ice applications continued, not knowing of anything better to do. The temperature at this time was 103° F. Upon the following morning all symptoms had abated. The chemosis had entirely disappeared, as well as the external swelling of the lids. The conjunctiva of the lower half of the bulb and of lower lid was deeply injected. The upper half of bulbar, and conjunctiva of upper lid, now showed a more general hyperæmia, but markedly less than below.

There was no discharge. The parotid swelling had subsided, as well as all general symptoms abated. The temperature was 101° F.

The following morning and the fifth day after he was first seen the patient was found to have an eruption upon forehead, neck, chest and arms, which proved to be smallpox. This cleared the air of perplexity so far as the diagnosis was concerned, as well as to the fact that the point of inoculation was the conjunctiva of the right eye.

The patient had slept with a friend visiting him from Allegheny, Pa., two weeks before, who had "chicken pox" (?).

The general disease ran a mild course and the eye made a good recovery under irrigations of saturated solution of boric acid, and the use of atropia and hot fomentations. This, so far as I have been able to obtain the literature on the subject, is the first record of where the conjunctiva was the initial point of inoculation of smallpox.

An Address on Jaques Daviel.—In 1752, Jaques Daviel gave to the world, through the Royal Academy of Surgery, of Paris, "a new method of curing cataract by the extraction of the crystalline lens," an operation which, in its results and its beneficence, has proved to be one of the richest legacies ever bequeathed to surgery. Nineteen hundred and two, therefore, marks the third semi-centennial anniversary of thet publication, and it has seemed fitting that the ophthalmological section of the American Medical Association should take some cognizance of it. The chairman has, therefore, invited Dr. Alvin A. Hubbell, of Buffalo, to deliver an address commemorative of the event. Dr. Hubbell has, for the first time, brought together the writings of Daviel and has collected all the literature which he can find on his life, and can speak with authority on this "hero in medicine" and his achievements. Ophthalmologists ought to be interested in the theme.

TUBERCULOSIS OF THE CONJUNCTIVA.*

BY JAMES BORDLEY, JR., M. D.

Assistant Surgeon Baltimore Eye, Ear and Throat Charity Hospital, Baltimore, Md.

Illustrated.

It is claimed by many foreign writers that conjunctival tuberculosis is not a rare affection; notwithstanding that fact, I have been able to find but eighty-four reported cases. Included among these cases are several in which the typical tubercle formation and the bacillus tuberculosis were never demonstrated. Two, indeed, were reported as tuberculosis after inoculation experiments, and the microscope had failed absolutely to confirm the diagnosis.

It is my belief that a more thorough microscopic study of so-called simple ulcers and polypi of the conjunctiva would show a larger percentage of tuberculosis. Still, in the light of the work already performed, we most assuredly cannot state that conjunctival tuberculosis is common. Mules estimates that one case occurs in every 30,000 eye diseases treated; Hirschberg, one in 6,000; Eyre, one in 2,700. Rokitansky reported from observation 14,000 cases of tuberculosis without mentioning the eye as being involved in a single instance. Mooren failed to find one case of conjunctival tuberculosis in 100,000 cases treated. Not one case has been recorded in the Baltimore Eye, Ear and Throat Charity Hospital, although 41,730 eye affections have been treated. If we can judge from the number of cases reported, conjunctival tuberculosis is certainly extremely rare in America.

A resumé of the eighty-four cases which I have collected from the literature dating from 1870, the time of the first report on the subject, to the present time, reveals many interesting facts which I will mention under several heads. Etiology: Most of the infections occurred in people ranging from 10 to 30 years. Still there is apparently no age limit, cases having been reported in which the age varies from 8 months to 62 years. Of the two sexes, the female seems to be slightly more prone to the disease, 62 per cent of the cases having occurred in girls and women. The general bodily condition played an important role, shown by two facts—first, a total of twenty-one cases, or 25 per cent of the number recorded, followed an infection primarily in some other part of the body; second, in 10 per cent of the cases of primary origin in the conjunctiva the health was poor.

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*Read before the Ophthalmic Section of the Medical and Chirurgical Faculty of Maryland, March 29, 1902.

An accident, either recent or remote, was assigned as the cause of infection in fifteen cases. Two cases followed squint operations performed for the relief of strabismus, and one case developed as a tarsal cyst. The right eye is apparently affected slightly more often than the left, the proportions being 47 per cent for the former, 40 per cent for the latter, and 13 per cent for both eyes. The lesion originated in the conjunctiva of the upper lid in 33½ per cent of the cases, in that of the lower lid in 15½ per cent, in the bulbar conjunctiva in 12 per cent and in the palpebral and bulbar conjunctiva in 6 per cent.

Symptoms: A close study of the cases leads me to the conclusion that Sattler's classification is the best. He divides the cases into five groups, which are recognized by their "broad clinical characters and naked eye appearances."

Group I. "Small miliary ulcers which may coalesce, generally attacking the palpebral, but sometimes the bulbar conjunctiva." Forty-two cases are placed under this group, twice as many as in any other single group.

Group II. "Subconjunctival nodules, not unlike the sago granules of trachoma." Twenty cases, next in point of frequency.

Group III. "Florid hypertrophied papillæ and rounded outgrowths of granulation tissue, situated in the fornices and springing from the palpebral conjunctiva. The granulations are accompanied by œdema of the lids." I have placed under this description seventeen cases.

Group IV. "Lupus of the conjunctiva, characterized by pedunculated excrescences in the fornices, of a jelly-like consistency." This is next to the rarest form of the disease, only five cases being recorded.

Group V. "Pedunculated tumors having the macroscopic appearance of papillomata, and those designated by Mitvalsky as 'true polypus of the conjunctiva.'" Only four cases appear under this group, making it the rarest form of tuberculosis of the conjunctiva.*

Two facts which struck me with a great deal of force are either not mentioned by our leading text-books, or, if so, only casually. First, that in a large percentage of the cases pain was either very insignificant or entirely wanting. Second, that the amount of lachrymation or purulent discharge was unusually slight for such a severe inflammation. Indeed, in several cases in which the inflammation was very extensive, the report is made, "no discharge or excessive lachrymation observed." Enlargement of the preauricular glands was mentioned in 30 cases. In a few the submaxillary and even the cervical glands became involved in the process.

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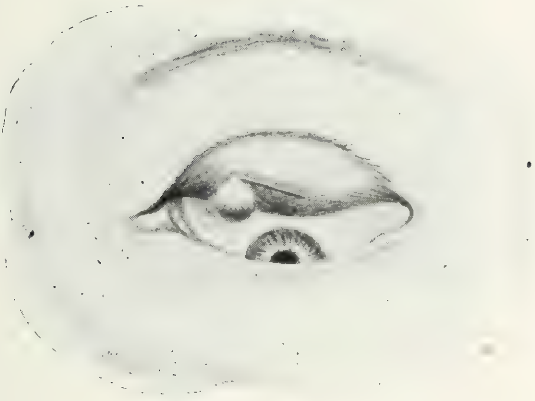
*Four of the cases showed a mixed variety, so were placed under groups I. and II.

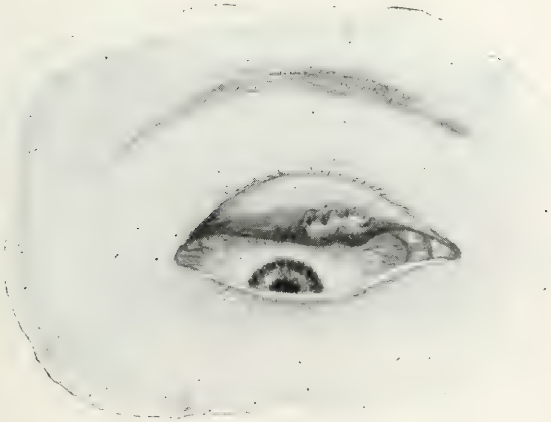
Means employed to confirm the diagnosis: Microscopic examination of the secretions and juices of the eye to determine the presence of the tubercle bacillus; microscopic examination of the conjunctiva and excrescences for the typical tubercle formation and bacillus tuberculosis; inoculation of animals to ascertain whether the bacillus tuberculosis could "be grown"; examination of mucus and sputum, from nose, throat and lungs to determine the presence of tuberculosis in those organs. In several cases where bacilli were not found in the growth or resulting secretions, they rapidly developed when inoculation experiments were carried out on rabbits and guinea pigs.

Prognosis. A large majority of the cases made an uneventful recovery after treatment was instituted. Still, there were enough recurrences and deaths to justify a guarded prognosis. The following statistics include only cases in which the infection was primarily in the conjunctiva: Recurrences after apparent cure, in the conjunctiva and eye, 6; lungs, 2; meninges, 2; skin of face and nose, 2; preauricular glands, 1; leg ulcer, 1; general miliary tuberculosis, 2. Eight eyes were lost, and in two additional cases the sight was destroyed. The cases were followed up for periods varying from a few hours to fifteen years, generally for a month or less. I believe, to determine accurately the number of recurrences, all cases should be watched for a period of not less than three years. Since tuberculous processes in other parts of the body recur many months after apparent cure, why should the same thing not happen in conjunctival infections?

I consider it really unfortunate that three cases should have undergone spontaneous healing. Such has been the impression made on the minds of some physicians by these cases that a too-favorable prognosis is usually given by them, while, at the same time, they strongly advise against surgical treatment in any form.

Treatment: At least two theories have been advanced why surgical interference should not be resorted to. One theory—and the other is fully as baseless—is that to remove an ulcer or nodule only opens a new channel, and a larger one, for general infection; and if not a general, certainly a more extensive local infection. Exactly





the opposite is conclusively proven by the number of recurrences, secondary involvements of other organs, and deaths. Experience certainly says, surgery, and the more surgery the more certain is the result to be satisfactory and lasting. The instrument of choice is a sharp curette. After a thorough curetting, lunar caustic or the actual cautery should be applied to destroy any possible diseased tissue left in the wound. Two cases recurred in situ where only curetting (or excission) was employed. In one case the lid involvement was declared to "be so extensive as to debar operative procedure." The result in this case was secondary involvement of the eye, meningitis, death. Had the growth in the lids been a malignant epithelioma, with no secondary involvement of other organs, as in this case, it is most probable that the surgeon would have proposed such a radical operation as exenteration of the orbit. Why not the same thing in tuberculosis which gives unmistakable signs of progression? Surely it is not the part of good practice to sacrifice a life in order to save an eye. Good hygienic surroundings, good food, plenty of fresh air and sunshine, together with antiseptic powders, and eye washes make up the medical treatment. Electrolysis and the actual cautery proved valuable adjuncts to surgery.

I wish to add one more case to those already recorded (Fig. 1). The mode of infection and the impossibility of making a diagnosis from the macroscopic appearances are points of especial interest. History: Farmer, aged 32, white. Was struck in the eye by a supposed cinder while threshing wheat two months previous to consulting me. For a day or two after the accident the eye was very painful. He complained only of a feeling of "sand or dirt in the eye" when I first saw him. Family and personal history negative as to tuberculosis. No eye trouble previous to the injury by the supposed cinder.

Examination: R. E., normal. L. E., lids not swollen, secretions normal, media clear, iris good color and responded promptly to light, fundus normal. Bulbar and palpebral conjunctiva of lower lid normal. Everting the upper lid, a papillomatous growth presented to view. The growth was attached to the conjunctiva overlying the tarsal cartilage, near the internal canthus. The tumor was rounded from above down, and flat on the anterior and posterior surfaces. In color it varied from a gray above to a deep pink below. Stuck in the conjunctiva, immediately where the pedicle was attached, was a wheat beard, 8 to 10 mm. long, with its free end extending toward the external canthus. Under the free surface of the wheat beard, the conjunctiva was inflamed and slightly ulcerated. No swelling of preauricular or submaxillary glands. Temperature normal, appetite good.

Treatment: The growth was removed by cutting the pedicle as close to the conjunctiva as possible. I then curetted the points of ulceration and applied lunar caustic. No recurrence of the growth has taken place, although it has been eighteen months since it was operated upon.

The tumor was hardened in alcohol and sent to my friend, Dr. F. H. Verhoeff, to make sections and stain. I herewith submit his report:

"The specimen submitted to me for examination was hardened in alcohol and embedded in celloidin. On microscopic examination it is found to consist of young granulation tissue rich in lymphoid and plasma cells. Many giant cells are to be seen, but there are no definite tubercles and no areas of caseation to be made out. A number of sections were stained in carbol-fuchsin for twenty-four hours and decolorized in acid alcohol. One of them shows a typical tubercle bacillus lying in an epithelioid cell. The tissue, therefore, is, in all probability, tuberculous in nature."

It is unusual to find more than two or three bacilli in growths of this nature. Serial sections were made in one case and not a bacillus discovered, yet inoculation experiments confirmed the diagnosis. I wish to report briefly another case which in its "clinical signs and naked eye appearances" corresponds exactly to some of the cases recorded as tuberculosis of the conjunctiva, but in which the microscopic findings did not sustain this view (Fig. II).

Boy, aged 12, family history of tuberculosis. Personal history good. History: While out driving something flew in his R. eye. Although the eye was examined by a physician almost immediately after the accident, nothing was discovered. The pain soon subsided. Two weeks after the occurrence noted, his eye became injected and painful, and one week subsequent to this he was sent to me for examination.

Examination: L. E., normal. R. E., upper lid swollen and painful to the touch; free muco-purulent discharge. Bulbar and palpebral conjunctiva of lower lid injected. Two small cysts in the plica-semilunaris. Media clear, iris and fundus normal. On everting the upper lid the conjunctiva was found to be much injected. Situated over the tarsal cartilage and extending into the retro-tarsal fold, near the internal canthus, was a large ulcer. The ulcer had well defined and slightly raised edges, was deep and covered with dirty gray detritus and small granulations. In addition to the "naked eye appearances," the patient had had fever for a week, night sweats every night for a week, appetite was lost, complexion bad, energy entirely lacking, and there was decided enlargement of the preauricular glands on the right side.

Treatment: The most prominent granulation was cut off with scissors and kept for microscopic examination. With a sharp curette I cut away the ulcer, leaving a very large bleeding surface, which I cauterized with lunar caustic. I made a second application of the caustic the next day and ordered a collyrium of bichloride of mercury, 1-8,000. Recovery was uneventful, and although a year has elapsed there has been no fresh outbreak of the trouble.

I found in the scrapings a very small seed pod which I had failed to notice before the operation. The scrapings and the fluid from the cysts, which I opened, were stained, but no tubercle bacilli were found, but staphylococci were present in large numbers. Microscopic examination of the tumor proved it to be only a simple granuloma. Unfortunately, I was so situated at the time as to be unable to make any animal inoculations.

I do not report this case as one of tuberculosis; indeed, I feel convinced that it is not. I simply wish to show that a clinical picture, typical of conjunctival tuberculosis, may prove under microscopic examination to be a simple infection, while, on the other hand, a growth, apparently perfectly benign, as in my first case, may be shown by the microscope to be tuberculosis.

Dionin in Ophthalmology.—Dr. Schmitz (*Woch f. Therap. u. Hyg. des Auges,* IV., No. 38) has had occasion to use dionin in five cases of ophthalmic disease, and expresses his great satisfaction with the results, especially in a case of parenchymatous keratitis. The patient, who was on the verge of total blindness, owes his recovery to a course of treatment with dionin. Other similar cases were recorded by the author. The application of the drug produces only transient burning and swelling of the lids. The rapidly increasing favorable literature on dionin justifies the hope that the drug will prove to be a permanent acquisition in ophthalmic therapeutics.

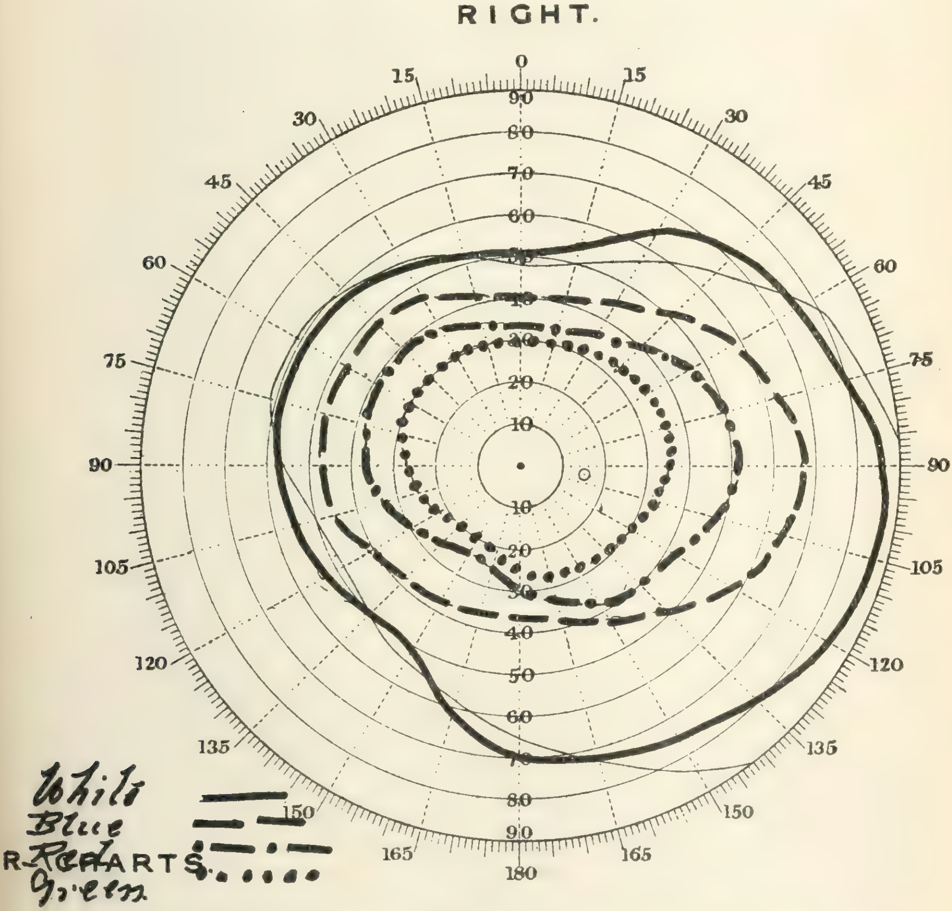
TWO CASES OF HYSTERICAL MONOCULAR DIPLOPIA.

BY M. W. ZIMMERMAN, M. D.,
PHILADELPHIA, PA.

These cases present certain very interesting features which will, I hope, justify me in presenting the clinical histories in some detail. The first patient was under observation at short intervals for several months, the second for two weeks only.

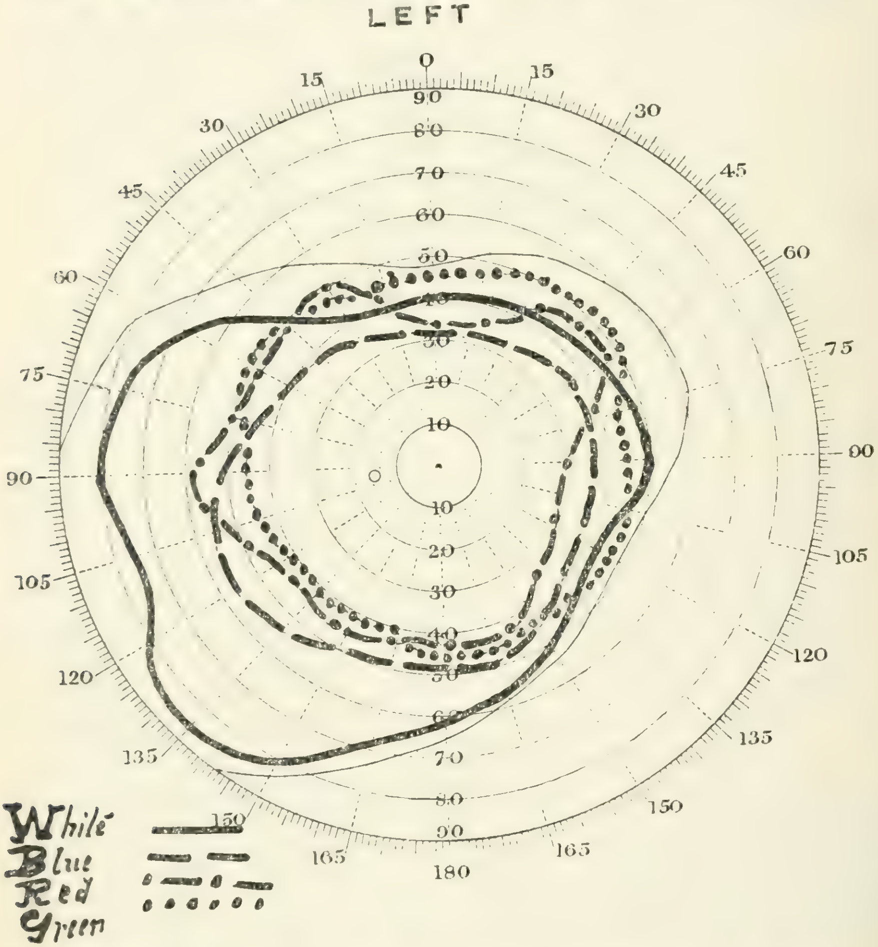
Case 1. Fanny R., aged 15 years, worked in a shirt factory and appeared to be in perfect mental and physical health. She was not exposed to any of the ordinary poisons, had received no injury, and reported no serious illness since early childhood. On May 17th, 1895, she came to the Germantown Hospital complaining of bi-temporal headaches with ordinary asthenopia, and her refraction was estimated by the use of hyoscyamia sulphate. The media and eyegrounds were entirely normal, and glasses were prescribed which
O. D. + .75 sp.
corrected her small hypermetropic error O. S. + .50 sp. = Cy. + 25 ax .90. Three days later while testing with the maddox rod, her confusing replies led to a more careful inquiry concerning the images, and elicited a very matter of fact statement that she had had, constantly during four years, a vertical diplopia in her left eye, or with both eyes open, three images. My repeated examinations gave the following results: At twenty feet the double images were three or four inches apart, the upper one slightly to the right. On approaching the Graefe line and ball from a distance of fifteen feet, the greatest distance at which it could be seen, three images remained throughout the excursion, quite up to the reading point. With the right eye excluded and a deep ruby glass before the left, only the lower image remained. On passing a graduated green glass over the pupil, beginning at the end of weakest color, both images remained until a point of deep color was reached, when the upper one disappeared. This disappearance always occurred on reaching a certain point in the glass, being evidently due to suppression of the false image, when the intensity of color excluded the necessary light. Exactly the same thing happened with other colors, but the point of disappearance varied, being nearer the dark end of a pale blue glass, and very near the light end of a strong ruby glass. The thin, sharp edge of tinted glass, on invading the pupil from above or below, first colored the image nearest. Similarly used, the dark edge colored the lower image only and this one

remained on completely covering the pupil. Colors approaching from the side sometimes affected the near side of both flames, but the test was uncertain. The two images seemed to be at the same distance, and usually of like intensity, but when a difference existed it was the upper or false image which appeared brightest. The Maddox rod over the right eye placed the luminous line midway between the double images of the left when horizontal, and two degrees to their left when vertical. A red glass over the right eye caused its image to appear between and to the left of the other two. The patient seemed accustomed to the multiple images and usually ignored them, but out of doors it was her habit to close the right eye, being unable to close the left one alone. The images



annoyed while reading unless the page was held very near the eyes, by which means they became imperfectly fused and less evident.

The visual fields are valuable because they show marked partial reversal in the left or affected eye. The patient's subsequent history so far as I know it, is uninteresting. She retained her health, and some months after my last examination, reported all the images still present.



Case II. Miss S., probably twenty years old and without regular occupation, reported to me in September, 1893, that for three years she had been troubled with double vision in the left eye, although glasses had given relief from this symptom for a time.

During the same period there had been much frontal and occipital headache with asthenopia. The diplopia was most distinct, at periods recurring every one or two weeks, and always confined to the left eye. The double images existed for distant objects only, never having been produced at the reading point. A street gas light half a block distant was doubled, the images being apparently separated three or four inches horizontally. This appearance was not, however, limited to points of light, and when present was not influenced by blinking or changing the position of the head. Under atropine the required correction (O^2 sp. + 1.50 = Cy. + .50 ax. 90°) was ordered and gave a perfectly good result in other respects, but failed utterly to influence the diplopia. The media were entirely clear, and no changes could be found in the eyegrounds. In my office with a candle at fifteen feet, and the other eye carefully excluded, the flame was seen, not as two complete separate flames, but as if they overlapped or two incomplete ones had been joined. On approaching an opaque screen from one side, half of this image could be obscured so that only one flame remained, but the latter was always incomplete, having a straight side as if sliced off. On very carefully moving a red glass from the left to the center of the pupil, two images remained, the right one being colored. Again on approaching the red glass from below, the color began at the top and traveled down, coloring the flames on both sides of the cleft equally. This clinical history must rest on its merits, but the examinations in my office were searching and frequently repeated. I regret that this patient failed to keep an appointment made for the purpose of securing perimetric records.

Hysterical monocular diplopia has been recognized, more especially in connection with traumatism, but my diagnosis in these cases is mainly by exclusion. Confirmatory evidence of hysteria was entirely absent in the second case, and limited to the characteristic behavior of the color perception limits in the first. In support of my diagnosis, however, I would offer as valuable evidence of a negative character, the complete absence of optical and mechanical causes within the eyes, such as dislocated lens, polycoria, iridoalysis, distortion and opacities in lens and cornea, etc. Also the entire lack of evidence pointing to coarse disease of the central nervous system. Neither patient had sustained any serious injury, even remote.

THE ROENTGEN RAY IN OPHTHALMIC PRACTICE.*

BY DON M. CAMPBELL, M. D., L. R. C. S. (EDIN.)

Clinical Professor Ophthalmology and Otology, Detroit College of Medicine Attending Oculist and Aurist to Harper Hospital, Detroit, Mich.

Illustrated.

One of the most perplexing situations in which an ophthalmic surgeon finds himself is when he is confronted with an eye which has received a penetrating wound by a flying missile which, leaving devastation more or less complete in its flight through the delicate ocular tissues comes at last to rest in a situation inaccessible to the ordinary means of examination, such as inspection, focal illumination or the use of the ophthalmoscope.

With what a feeling of relief and a sense of security in one's position does the ophthalmic surgeon view such a case when the skiagraph shows the presence of the foreign body or reveals an eye free from an unwelcomed lodger.

If the Roentgen ray had done no more than make it possible for the ophthalmic surgeon to be positive of the presence or absence of a foreign body in the eyeball a great good would have been accomplished. In illustration of its possibilities I have a series of skiagraphs to show you and cases to report therewith.

Before referring to the pictures and reporting the cases I wish to show "the Sweet Plate Holder," which adds much to the accuracy of the work and also makes a definite locating of the missile within the eyeball possible.

I also wish to show "The Johnston Magnet," which has proved an efficient, reliable and durable instrument in my hands.

Case 1. The first picture which I wish to show is that of J. B., aged 22, who received a wound of the left eyeball by a flying piece of iron from a hammer. This eye was seen within a few hours after the injury was received and presented the following appearances upon examination:

The conjunctiva and sclerotic midway between the corneo-scleral margin and the inner canthus was the site of a contused wound, the conjunctiva and the upper layers of the sclerotic were lacerated and the force of the blow (or was it the penetration of the missile?) had produced an extensive intra-ocular hemorrhage. Tension normal. Had the foreign body penetrated the eyeball? An important question.

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*Read before the Detroit Ophthalmological and Otological Club.

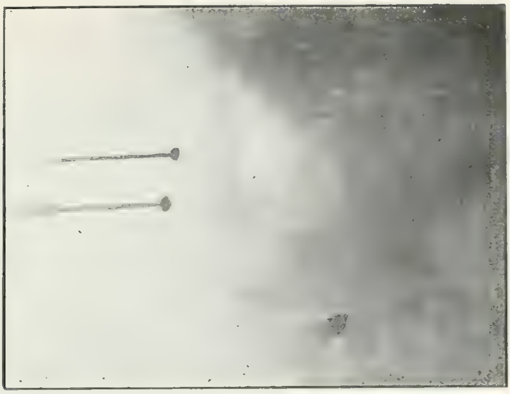

Fig. 1. An Eye Free from Foreign Body.

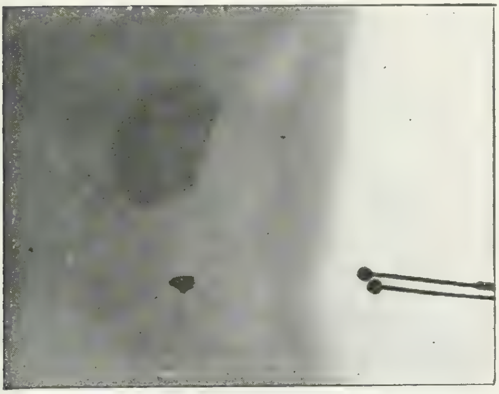

Fig. 2. Bullet in Orbit. Shows Small Piece of Detached Bullet.

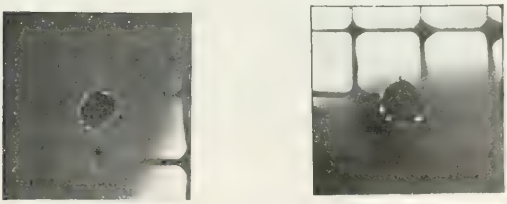

Fig. 3. Bullet in Upper Eyelid.

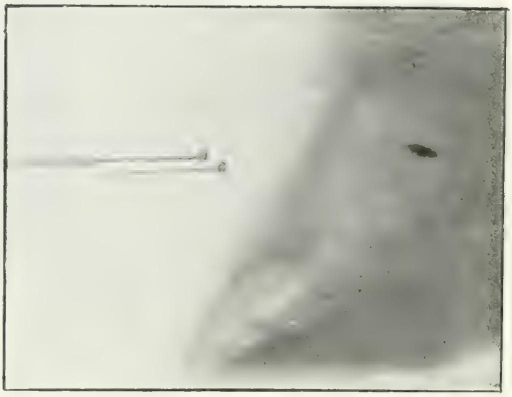

Fig. 4. Gun Cap in Eyeball.

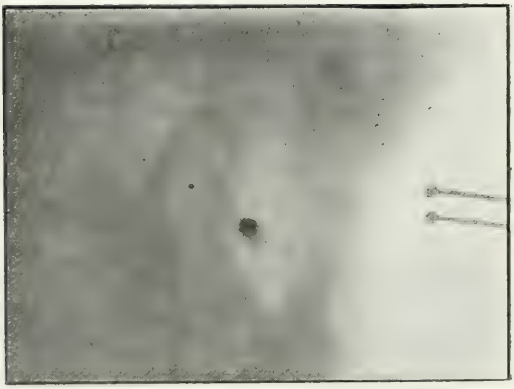

Fig. 5. Steel in Eye.

An examination of the skiagraph will show the appearance which the Roentgen rays give of an eye free from a foreign body.

In this connection I will report Case 2, of which, however, I have no skiagraph, but it was negative in its findings.

Mrs. P. O. W., aged 37, a tall, spare woman with a history of syphilis, came under observation with an eye which had been inflamed and blind for three months.

An examination revealed a cornea of dense opacity and of a yellowish tinge. The eye was exquisitely tender to the touch, greatly inflamed, a minus tension, no view could be had through the densely opaque cornea of the anterior chamber or iris.

The clinical history revealed the interesting fact that this patient had been struck in the eye by a piece of a tack while attempting to raise a carpet and that the inflammation of the eyeball which had eventuated in the present condition had followed closely upon this accident.

Was the present condition due to a syphilitic uveitis with dense infiltration of the cornea or was this a low grade of intra-ocular sepsis from a retained foreign body? Again an important question, the determination of which yea or nay would have a vast bearing on prognosis and treatment.

The Roentgen ray solved the problem and a good stiff course of antisyphilitic treatment brought about a complete cure.

Case 3. Mrs. —— was shot in the temporal region and the ball lodged in the orbit as shown by the accompanying skiagraph, from which situation it was removed by Dr. Frothingham.

Case 4. A young boy was manipulating a Flobert rifle when the gun was discharged and the boy received the bullet in the upper lid of the left eye.

The skiagraph shows the ball in its new domicile in the cellular tissue of the lid, from which situation it was easily removed, the patient being under a general anæsthesia.

An interesting feature of this case was that the fluoroscope showed the bullet moving with each movement of the lid during the act of winking.

Case 5. S., aged 10, a Canadian by birth, was wounded in the right eye by a flying piece of gun cap which he had exploded by striking with a hammer. He came under observation two weeks after the injury and at that time the eye was red, inflamed and tender. A traumatic cataract had formed and the presence of a foreign body within the eye was suspected. A small linear scar could be faintly seen in the cornea. Tension was normal and there was good perception and projection of light. A skiagraph was taken and showed plainly a foreign body in the eyeball.

The traumatic cataract was extracted and an ineffectual attempt made to extract the foreign body. A few days later sympathetic irritation became well marked and the eyeball was removed. It contained the gun cap which the skiagraph had shown.

Case 6. F. L., aged 30, a railway construction laborer, consulted me in August, 1901, with the history that six days previously he had, while hammering a railroad rail, been struck in the eye with a flying piece of steel and that since that time his vision had been defective.

Upon examination his left eye showed a little congestion, a very faint corneal scar, a traumatic cataract, and some pupillary adhesions. A retained foreign body was suspected and the situation explained to the patient, who would not believe it possible that there could be a piece of steel in his eye, as he had suffered but little pain.

In order to satisfy myself and convince him a skiagraph was taken which, as the picture shows, clearly demonstrated the presence of the foreign body.

The patient was given a general anaesthesia, a corneo-scleral section was made with the narrow knife, the cataract extracted and then the tip of the Johnston Magnet introduced and passed towards the place where the foreign body was supposed to be. At the second introduction of the point the welcome click was heard and the foreign substance removed.

The eye healed kindly and in two weeks the patient was allowed to leave the hospital.

It would be very satisfactory if this clinical history could be terminated at this point but subsequent events must be detailed.

This patient returned in about ten days saying that a few days previously he had taken a long ride in an open carriage being exposed to a cold wind and that night the eye became inflamed and he thought his good eye felt irritated.

A fresh attack of irido-cyclitis had been set up and the good eye presented the circum-corneal congestive zone of beginning sympathetic ophthalmia. The injured eye was enucleated within two hours, but the sympathetic irido-cyclitis developed in all its accustomed fury and the patient, after months of suffering, is left only barely enough vision to find his way around.

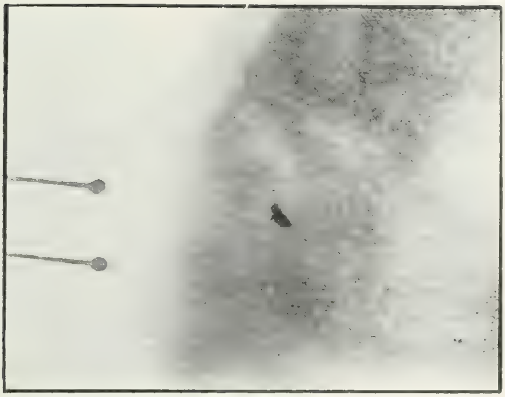

Fig. 6. Steel in Eye.

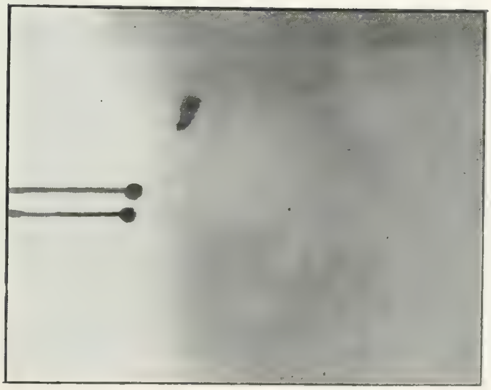

Fig. 7. Iron in Cul-de-Sac. Above.

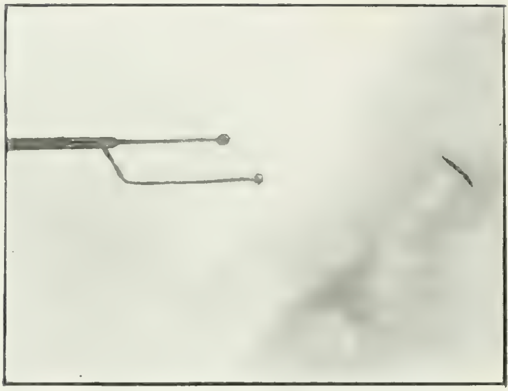

Fig. 8. Iron in Eye Ball.

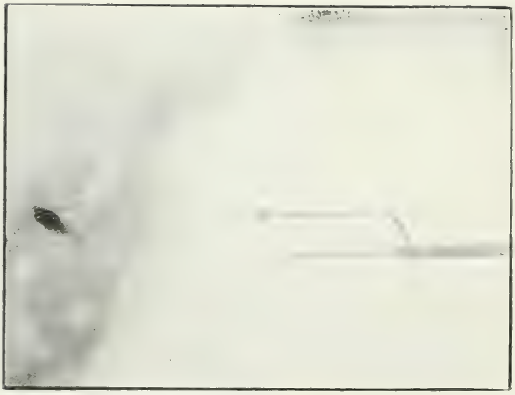

Fig. 9. Iron in Eyeball.

Case 7. G. A., aged 34, was struck on the upper lid by a piece of flying steel. A wound was found passing through the whole thickness of the lid a probe being easily passed from the skin surface and emerging at the upper fold of transmission.

The eyeball presented a large penetrating wound of the conjunctiva and sclerotic midway between the upper corneo-scleral margin and optic nerve entrance. A probe could be passed into the vitreous chamber and the inner wound could be seen through the dilated pupil by means of the ophthalmoscope. Tension was subnormal (decidedly). No trace could be found of the foreign body, either in the interior of the eye or in the cul-de-sac.

A skiograph was taken which showed the foreign body very plainly but, curiously enough not within the eyeball at all, but high above it. A slight dissection in the cul-de-sac, in the situation in which the skiagraph showed the missile to be lodged, easily reached it and it was quickly removed. A perfect recovery ensued.

Case 8. R. E., a small nine-year-old girl, was hammering nails one afternoon for recreation; presently she came to her mother saying that her eye felt uncomfortable, but denied that she had gotten anything into it.

The irritation subsided in a few days under domestic treatment and it was not until three weeks later that, the irritation recurring, the mother thought it necessary to seek medical advice.

Upon subjecting the eye to a critical examination a small cicatrized wound could be seen in the sclerotic two millimetres back of the corneo-scleral margin. The wound was pigmented, showing a wound to the uveal coat; iris normal, pupil round, central and active Vision 10-200. Tension normal.

Ophthalmoscopic examination showed some foreign substance or inflammatory lymph in the vitreous and a clear lens.

An opinion that the eye harbored a foreign body was given and that an attempt should be made aiming at its removal, failing which the eye should be removed.

Both the opinion and the advice was at first rejected.

The next day the child was brought again with the complaint that the other eye was irritated and the advice of the day before was repeated with the additional request that a skiagraph be taken, the understanding being that if the X-ray picture showed the presence of the foreign body the eye should be immediately enucleated.

The skiagraph showed distinctly the presence of the foreign body.

The eye was enucleated and a piece of steel found therein which fitted perfectly a defect in the face of the hammer, showing plainly from whence it came.

The sympathizing eye developed a moderately mild sympathetic irido-cyclitis which went on to perfect recovery under vigorous local and constitutional treatment.

I report these few cases and show their accompanying skiagraphs to illustrate my theme and to show how the Roentgen ray not only makes us sure of our ground but frequently helps the unfortunate patients or their friends to make up their minds to submit to a surgical mutilation which does not always appear to the lay mind to be as necessary as it really is.

These skiagraphs were made by Dr. P. M. Campbell, No. 65 Washington avenue, Detroit, Mich.

57 West Fort Street.

Toxic Amblyopia.—Dr. Terrien, as stated in *New York Medical Journal,* has followed for long periods the cases of patients who, after having had large scotoma for white and colors, have regained good central visual acuteness. It is, of course, essential that tobacco and alcohol be foregone. For the phenomena of general intoxication when the patient has insomnia and agitation, he prescribes at first small doses of opium or potassium bromid. A little later he employs strychnin, either hypodermically or in pills. The former method he considers preferable, the dose ranging from grain 1-60 (.001) to grain 1-30 (.002). The following is his formula when given in the pill form:

℞	Strych. sulph	gr. 1-60	.001
..	Quassin (amorphous)	gr. 1-6	.01
	Pulv. rhei. q. s.		

M. Ft. pilula No. i. Sig.: Take one such pill two or three times daily before meals. In addition, where practicable, he employs weak continued electrical currents, one electrode being placed on the back of the neck, the other moved alternately under the eyes. The current should be very mild, and should not be strong enough to cause pain.

THE
OPHTHALMIC RECORD
A MONTHLY REVIEW OF THE PROGRESS
OF OPHTHALMOLOGY.

VOLUME XI, No. 7. CHICAGO, JULY, 1902. NEW SERIES.

REPORTS OF SOCIETIES.

SECTION ON OPHTHALMOLOGY—AMERICAN MEDICAL ASSOCIATION.

Saratoga Springs, N. Y., June 10th, 11th, 12th and 13th.

Tuesday, June 10th, 2 p. m.

The meeting was called to order by the chairman, Dr. Frank Allport, Chicago, Ill.

Address of the Chairman.

In the program of the present meeting the endeavor was to have a few subjects systematically and thoroughly treated rather than to treat a great variety of topics. The officers were much gratified at being able to announce that owing to an invitation extended to Professor Haab, of Zurich, Switzerland, he had traveled from that distant country expressly to deliver an address before his American colleagues in this section, and in behalf of the section he bid the Professor welcome and extended to him the privileges of the floor.

The Treatment of Serpiginous Ulcer of the Cornea. Dr. Chas. J. Kipp, Newark, N. J. Dr. Kipp said that twenty years had now passed since he first observed that certain cases of serpiginous ulcer of the cornea in which no further progress was noticed after they came into his hands presented the following features and healed under very simple treatment; from the margin of the ulcer straight lines diverge in all directions through the parenchyma of the deepest layer, not giving off branches and the further ends of which lines are connected by grayish intermediate striæ; if present all around these intermediate lines form a distinct ring, and if the ulcer is situated in the center of the cornea with these striæ well developed the appearance might be compared to a spider's web. He considered that ulcers presenting this appearance had ceased to be progressive and that no treatment involving further destruction of tissue should be used. In cases where blennorrhoea of the sac is present he splits the canaliculus. The only treatment required is warm fomentations and instillation of a mydriatic. In cases where these linear opacities are not present he uses the galvano cautery and iodoform powder; if much pain, abstraction of blood from the temple; fluorescine is used to determine the extent of the ulcer before using the cautery; if tension is high he perforates the floor and sometimes does paracentesis of the corneal margin, but prefers perforation with the cautery. The writer spoke of the hope held out by Dr. Roemar that we shall soon possess a serum which will arrest the progress of the pneumococcic ulcer when injected subcutaneously or applied locally.

Discussion. Dr. de Schweinitz, Philadelphia, said it was unfortunate that the name serpiginous ulcer was used, as it gave a wrong idea of the disease. It was his practice to make his treatment agree with the bacteriologic conditions; in the absence of virulent infection he curetted and used bichloride; in virulent infection he used the actual cautery, tincture of iodine, or carbolic acid; blennorrhœa of the sac was treated by spliting the canaliculus and use of protargol.

Dr. Jackson, Denver, had used with decided benefit an application of nitric acid and seen rapid improvement follow its use, even in the pneumococcic infections; a 20 to 50 per cent solution.

Dr. Wilson, Elizabeth, N. J., had had some experience with these ulcers and could endorse what Dr. Kipp said, that when you see these striæ you can make up your mind that the infection will extend no further.

Dr. Connor, Detroit, said that a new remedy for the destruction of infectious germs had recently been introduced by Dr. Novee, which in solutions as weak as 1-10,000 destroyed gonococci in a few minutes without irritation, and said from the small experience he had had with it he thought it a useful agent.

Prof. Haab, Zurich, Switzerland, said he preferred to destroy the microbe directly by use of pure carbolic acid.

Dr. Randolph, Baltimore, called attention to the superiority of holocain over cocain as an anæsthetic in these cases prior to cauterization, and also that carbolic acid had anæsthetic properties itself.

Dr. Risley, Philadelphia, also emphasized the value of holocain and preferred to use a double strength tincture of iodine.

Dr. Wilder, Chicago, agreed with Dr. Risley as to the value of iodine and had dispensed with the cautery in many cases.

Dr. Taylor, Wilkesbarre, had come to use the cautery more and more and also used a strong solution of nitrate of silver.

Dr. Friedenwald, Baltimore, was rather surprised to hear the tincture of iodine spoken of so highly, as he had been very much disappointed in its use; he thought it invaluable for dentritic or other superficial ulcers but had given up its use in infected ulcers.

Dr. Hiers, Savannah, used the tincture of iodine, curetting thoroughly before its application.

Dr. Greenwood, Boston, added his testimony to the usefulness of iodine, and also of iodoform powder and said the cases were often benefited by the use of mercury.

The Nature and Treatment of Pterygia. Dr. John O. McReynolds, Dallas, Texas. The author said that Prof. Fuchs speaks of pterygia being peculiar to those past middle life, but that while that might be true of Vienna it was not true of the southwestern part of the United States. He attributed the cause to heat and dust with high winds, and said it was not infrequent to see boys with pterygia; those living in the warm, dry and dusty regions were the ones who most frequently developed the growth. When the evaporation of the tears is so rapid that they do not accumulate in sufficient quantity to wash away the foreign particle the conditions for development of pterygia were present. He described his method of operating which had given the most satisfactory results, and consisted of subconjunctival antero-inferior fixation.

Dr. G. C. Savage, Nashville, agreed with Dr. McReynolds as to etiology of pterygia and did not believe pingueculae where ever transformed into pterygia; he believed all these growths due to foreign bodies imbedded in the cornea, the bodies being too small to be noticed at the time; the process is one of ulceration, the extension bringing about changes in the epithelium and the conjunctiva becomes swollen, the limbus overlapping the cornea and becoming adherent to the base of the ulcer; men who are exposed in sandy countries are the most frequent sufferers. He had done the McReynolds operation more than a hundred times with only two per cent of failures.

Dr. Casey Wood, Chicago, endorsed what Dr. Savage said of the operation and said a most important thing was the excellent cosmetic effect; that after the operation one cannot tell that it has been done; he said that one of the chief factors in the production of pterygia was heat, as in the vicinity of Chicago; although there was much wind and dust the moist atmosphere prevented the frequent occurrence of this trouble.

Dr. Edward Jackson, Denver, emphasized what the other men had said as to the value of the operation.

Dr. E. E. Holt, Portland, and Dr. Geo. F. Suker, Chicago, had also performed the operation with success.

Thiosinnamine in Corneal Opacities. Experiences and Clinical Results. Dr. George F. Suker, Chicago, referred to the use of thiosinnamine as a resolvent of cicatricial tissue in the removal of keloids, lupus, urethral strictures and rheumatic joint affections which led to experiments to determine its efficacy in ophthalmic practice. It is an active alterative belonging to the same group as potassium iodide and mercury, and its use is indicated in corneal opacities from any cause, cicatricial contraction of the lids, exudative choroiditis, symblepharon, capsular opacities, and cicatricial ectropion. Experiments were made to determine whether it would prevent the maturing of cataracts but no results of value were obtained. The best mode of administration is in three grain capsules once or twice a day. After the patient has been taking it for five or six days it is well to intermit a week or ten days. It is a marked tonic, favors absorption of exudates, clears up corneal nebulæ and produces local reaction without systemic disturbance.

Dr. Sherman, Cleveland, had used it in a case of interstitial keratitis where the vision was reduced to $\frac{20}{100}$, and after using the drug in one grain doses t. i. d. for a year the vision was improved to $\frac{20}{40}$; he had reported thirty-three cases of its use with marked benefit in each case and was of opinion that it is a valuable remedy, especially in cases of avascular character.

Dr. Randolph, Baltimore, alluded to its use in tinnitus, in which class of cases he had found it of benefit given in half grain doses t. i. d.; in some cases it had produced distressing vertigo. Dr. Suker, in closing, said the tendency to vertigo would be overcome by its continued use, and he had not had a patient that could not take three-grain doses.

Should the General Practitioner Have a Working Knowledge of the Ophthalmoscope and Trial Lenses? Dr. A. R. Baker, Cleveland, Ohio. The writer considered that it was possible for the average medical student to gain a working knowledge of the instrument in the time allotted him. Twenty years ago that was not so, but the student now enters the medical school having learned how to study and comes to his senior year with a trained mind, trained eye and trained hand; it is the exception that one of them does not see the fundus the first time he takes the instrument in his hand and is able to make a drawing of what he sees and they gain a good practical knowledge of its use before they graduate.

Teaching Ophthalmology to Undergraduates. Dr. F. C. Todd, Minneapolis, Minn., said he considered the subject under two heads, didactic teaching and clinical work; there should be text books adapted to the student's needs from which lessons could be given; the most valuable method is clinical teaching where a series of cases can be presented for illustration. Laboratory work should be taught the student before he comes into the clinic; he believed there were certain portions of ophthalmology essential to the general practitioner, as the differentiation between glaucoma and iritis. He thought that while formerly too little attention was paid to the specialties we were now going to the other extreme.

Dr. Swan Burnett, Washington, thought the less the general practitioner had to do with the ophthalmoscope the better, because ophthalmoscopy is an art by no means easy to learn and one that requires constant practice, and "a little knowledge is a dangerous thing." To be of real value the instrument must be used by an expert.

Dr. Casey Wood, Chicago, said he had given up operating before large classes, and preferred to teach by use of a projecting apparatus, insisting that the student should understand the eye symptoms of disease as thoroughly as any other symptoms.

Dr. William Wilder, Chicago, was in accord with the views of Dr. Baker that the general practitioner should have a good knowledge of ophthalmoscopy and described in detail the method of teaching at the Rush Medical College, which consisted chiefly of practical instruction in the clinic.

Dr. Edward Jackson, Denver, though that ophthalmoscopy should be considered a very important branch in the education of the general practitioner and that it was being too much neglected. He considered it just as important as the teaching of microscopy.

Dr. Suker, Chicago, thought that a student before he is graduated should be able to describe the normal fundus, if nothing else; he should be able to appreciate the variations in the normal fundus.

Dr. Connor, Detroit, thought the students should be taught ophthalmoscopy if only to let them see that there was something absolutely certain in medicine.

Dr. Herman Knapp, New York, did not think any retrograde movement should be encouraged in this respect; that in Vienna one could not get a license to practice medicine without passing an examination in ophthalmoscopy and that we as a progressive country would soon have the same requirements.

Dr. Crum, Utica, thought that teaching ophthalmoscopy properly would cause the general practitioner to fully appreciate the skill required and enable them to send his cases to the oculist at the proper time.

Dr. Carmalt, New Haven, thought the discussion really belonged to another department, as the ophthalmologists themselves were practically all agreed on the importance of the proper teaching of the subject.

Dr. Frank Allport said that in his teaching he used the papier mache eyes and found them of great aid.

In closing, Dr. Baker said that the student could be taught to use the ophthalmoscope in just as short a time with the dilated pupil as with the papier mache eyes.

Address. *The Removal of Foreign Bodies from the Eye.* Prof. O. Haab, Zurich, Switzerland. Prof. Haab spoke favorably of the Desmarres capsule forceps for removing foreign bodies from the interior of the eye, saying that they caused but a slight wound and injured the vitreous as little as possible, but they were only of use when the splinter was free and visible in the vitreous. That we possess valuable aids in the diagnosis of foreign bodies in the X-ray and sideroscope, but they required much skill and patience in their use, and could be almost dispensed with by use of the large magnet. He described in detail the use of the large magnet in the extraction of various foreign bodies from the eye, which, with him, in 165 cases had only failed 25 times, and in these cases the failure was due to the body being too firmly embedded in the posterior wall of the globe or having pierced it completely; situated in the ciliary body; having produced fibrinous purulent exudate; or had been healed over for months or years. He had never observed any risk in its use and did not deem it necessary to have three different sizes, as advised by Hirschberg, the large magnet answering for all cases. In this country the large magnet was used almost immediately upon its introduction and with success.

Foreign Bodies in the Eye. Dr. William M. Sweet, Philadelphia.

Dr. Sweet said the majority of injuries were now due to iron or steel, but occasionally small shot, pieces of copper, glass and coal are the cause. That a small wound of the cornea with opacity of the lens is almost positive proof that the foreign body has passed into the interior of the eyeball and been retained; when there is cloudiness of the media the X-ray is the most accurate means of diagnosis; excellent results have been secured with the sideroscope, but owing to its delicacy it has a limited usefulness. The lower power of the Hirschberg magnet necessitates the introduction of its point into the vitreous, and therefore the large magnets are now more generally used. A chart was given showing the attracting power of the different magnets and demonstrating the superiority of the Haab magnet. If the wound of entrance had closed it was better to extract through an opening in the sclera. The after treatment should consist of cold, supplemented by atropia.

A Report of Some Cases of Foreign Bodies in the Eye, Where Haab's Magnet Was Used. Dr. Myles Standish, Boston. The writer reported a series of eight cases, in which a long, slender bit of steel was driven through the cornea and lens and removed without making an incision in the sclera. The undesirability of such an incision is due to the danger to the chorioid and retina. In all these cases by use of the Haab magnet the body was compelled, approximately, to retrace the tract by which it entered. The method of procedure was to bring the point of the magnet almost in contact with the cornea with its axis in a projection of the line of entrance.

Discussion.—Dr. Kipp, Newark, related a case in which by reversing the poles of the large magnet he had successfully removed a large piece of iron that could not be turned otherwise.

Dr. Herman Knapp, New York, referred to the danger of extracting foreign bodies through the sclera and preferred to bring them out through the original wound of entrance.

Dr. H. W. Woodruff, Joliet, had had 25 cases of injury by steel; located and removed by large magnet in 22 cases.

Dr. Sherman, Cleveland, said the cost of the Haab instrument precluded its use in many instances and spoke of one he had had made by the Brush Co., which worked very well.

Dr. Weiner, St. Louis, spoke of a case where he had failed to remove the body with a Haab magnet and had to make an incision and extract it with a small magnet. He had had a magnet made after the Haab pattern at a cost of less than $50.

Dr. Holt, Portland, preferred to extract through the sclera and had operated on cases where the eye was in a state of suppuration and seen the suppuration cease.

Dr. J. A. Lippincott, Pittsburg, said in his observation many patients had reason to be grateful to Prof. Haab for having devised the best method for removal of foreign bodies from the eye. He said all the other magnets were really children of Dr. Haab's. The best method of diagnosing was by the Roentgen ray, but the difficulties of using it were great.

Dr. E. C. Ellett, Memphis, reported a case where the foreign body had passed through the lens without producing cataract and another where evisceration had to be done.

Dr. S. D. Risley, Philadelphia, reported a case where, not having a Haab magnet at hand, he had with a Graefe knife made a meridianal incision just to the nasal side of inferior rectus and placing the tip of a Hirschberg magnet in the small wound withdrew the body. No reaction whatever.

Dr. Hiram Woods, Jr., Baltimore, reported a case in which the same proceeding described by Dr. Risley was used, the tip of a Johnson magnet being used; no reaction; discharge, but came back in six weeks with detachment of retina.

Dr. Appleby, St. Paul, said we should pay especial attention to the location of the foreign body in these cases and for that purpose should employ the sideroscope and X-ray.

Dr. Greenwood, Boston, reported a case in which a piece of steel was located in about the same position as that spoken of by Dr. Risley; removed by incision in sclera; three years later patient had 20-15 and lens absolutely clear.

Dr. Sweet, in closing, said that any body having the power to enter the eye could be located by the X-ray and showed some very minute bodies that had been located in that way.

Prof. Haab, in discussing the papers, thanked the members for the cases related and the approval of his magnet. He said it was often of advantage in nervous patients to use the magnet from behind. He said the first rule should always be to let the vitreous alone.

An Operation for the Restoration of a Cul-de-Sac for the Wearing of an Artificial Eye, with Report of Cases. Dr. John E. Weeks, New York. The writer spoke of the difficulty of establishing a cul-de-sac, the various operations, and said various kinds of tissue had been transplanted; a flap of integument or mucous membrane being most frequently used; partial success has attended all, but because of shrinking there is usually loss of the primary favorable result. The operation advised is to dissect the lid from the orbital tissue, carrying the dissection down to the tissue just above the periosteum; the skin on the inner aspect of the arm is taken as a flap, the margins of which are sutured to the margins of the defect and held in place by a sheet of rubber tissue lubricated by bichloride vaseline. Seven operations, all attended by success.

The Relative indications for Enucleation and the Mules Operation. Dr. N. J. Hepburn, New York. The author spoke of the indications for removal of the eyeball, viz: danger to fellow eye, pain in affected eye, extensive destruction of globe, malignant growth and cosmetic effect, and said it ranked with major operations, such as removal of a limb. The Mules operation is preferable when time of healing is no object, when the sclera is healthy and there is no affection of the optic nerve. The balls have been mostly of glass, but gold and platinum have been used, and lately experiments have been made with balls of hardened paraffine, which are lighter in weight, adaptable in size and non-absorbable. The operation is contraindicated when sclera is not healthy and in malignant or tuberculous disease of any part of the uveal tract; also in glaucoma and gouty affections and where old cyclitis exists.

Discussion.—Dr. Casey Wood, Chicago, emphasized the difficulties of forming a cul-de-sac and said the attempts to put in Thiersch grafts were almost invariably attended by failure; we must have something to hold the flap in place, and he usually used iodoform strips for this purpose.

Dr. Swan Burnett, Washington, related a case in which he had used a rubber piece something after the method of Dr. Weeks, getting a perfect cul-de-sac measuring two and a half inches from upper lid to bottom.

Dr. Nelson M. Black, Milwaukee, asked if paraffin could not be used in place of the rubber tissue.

Dr. F. C. Todd, Minneapolis, said he had inserted a glass ball in fifty operations, and in only two did it come out, in one of which it was removed on account of irritation.

Dr. Weeks, in closing, said it was necessary to attach the flap to some fixed point, and he preferred to attach it to the periosteum; it was necessary to have a firm sheet to hold the flap in position, and paraffine would be too friable.

In closing, Dr. Hepburn said that the Mules operation had fallen somewhat into disrepute, but was being again resurrected and in the last four years he had seen seventy or eighty cases and thought we were doing the operation better now because the cases were better chosen.

On the Symmetry of Our Visual Apparatus as a Dual Organ. Plea to Modify the Customary Notation of the Ocular Meridians.

Dr. Herman Knapp, New York. The writer said that of 1,473 cases examined, in 80 per cent the meridians were symmetrically placed, and in 20 per cent asymmetrically. The vertical meridian has the strongest curve, about five times as often as the horizontal. In the intermediary positions the strongest meridian inclines to the nasal side about twice as often as to the temporal. In order to establish a uniform designation of the meridians of the eye and of the field of vision as well, he recommended a method which is to begin at the nasal end of the horizontal meridian in both eyes, counting upwards and going all around the circle, which puts us in perfect harmony with the law of symmetry, and the diagram will read the same whether looked at from before or behind. The chart contains meridinal and parallel circles all around, so that any point or defect can be designated by two numbers, that of the meridian and of the degree of latitude. The writer considered the proposition which he made at Utrecht, at the International Ophthalmological Congress, the best of any that had been tried, as it rested upon a scientific basis, is easy of application and meets the requirements of daily practice. The change from the old system would require: 1, a new plate on the spectacle frame for the left eye, placing zero on the nasal and 180 on the temporal side; 2, a diagram of the prescription with the same change for the optician; 3, perimeter charts marked in the symmetrical way.

Discussion.—Dr. S. D. Risley, Philadelphia, said he regretted that he could not agree with Dr. Knapp as to the advantage of abandoning the methods employed for the past thirty years and confusing the records which had been made by the adoption of a new, unless it were an unquestionably better and more scientific method. He said that in all sciences where the circle is introduced, the eastern or left hand end of the horizontal line has been used as the starting point and the degrees counted upward, and we should hesitate before we divorce our ophthalmic records from a method so universally used by scientific men in all fields.

Dr. Swan Burnett, Washington, did not agree that the visual apparatus in man is a dual organ in the same sense that the hands are, but must be considered as a cyclopian eye, and the symmetry of the visual apparatus does not consist in the relations, nasal and temporal, of each globe to a vertical plane. The cyclopian eye has no nasal and temporal, but a right and left side, and this method divides the visual apparatus into two halves, for which there is no warrant. He could see no practical advantage in it.

Dr. Edward Jackson, Denver, said the tendency is to get some one basis and use it in many departments of life and we would do best to have our methods correspond to those of other branches of science.

Concerning the Symptomatology and Etiology of Certain Types of Uveitis. Dr. Geo. E. de Schweinitz, Philadelphia. The writer spoke of the significance of the symptom punctata keratitis, a deposit of opaque dots, generally arranged in a triangular form upon the pasterior lamina of the cornea; three diseased manifestations are encountered to which this name is applied; (a) keratitis superficialis punctata; (b) keratitis punctata vera, or syphilitic; (c) keratitis punctata. It has been noticed by many that when the characteristic deposits appear upon the posterior surface of the cornea recent patches of choroiditis are found often and perhaps always in some portion of the fundus; in all varieties of iritis corneal lesions are always demonstrable by careful examination. The causes of uveitis may be diathetic, toxic or infectious; as rheumatism, gout and diabetes; syphilis, gonorrhœa or tuberculosis; septic fevers and diseases of the blood. He spoke of the symptomatology of recurrent and malignant uveitis terminating in secondary glaucoma and cataract and of the significance of the size, deposition and color of the deposits; of acute uveitis, beginning as a sclerotic-choroiditis, especially in young subjects, terminating in myopia and posterior polar lenticular opacity; of chronic uveitis of mild type in elderly subjects associated with hemorrhage in the vitreous; relapsing plastic uveitis, with reference to the insidious approach of certain types in gouty and rheumatic subjects. In one form the primary lesion appears in the fundus as a well defined choroidal change; in another class it appears first as a flitting conjunctival congestion, the hot eye of Jonathan Hutchinson, the vaso-motor dilatation of Swan Burnett and the periodic episcleritis of Fuchs.

An Analysis of Thirty-seven cases of Uveitis, with Special Reference to: 1, *Etiology;* 2, *Relapses;* 3, *Rare Early Symptoms;* 4, *Importance of Perimetric Examinations.* Dr. Hiram Woods, Jr., Baltimore. The author studied the cases from the standpoint of: 1. Visual symptoms with intraocular appearances; sudden and sometimes complete loss of sight; decemititis with metamorphopsia, photopsia, scotomata and muscae; dim areas in field brought out by perimetric examination. 2. Etiology: There were a small number showing syphilis, scrofula or rheumatism, intestinal or menstrual disorders, acute systemic infection and sympathetic ophthalmia. 3.

Relapses: The 37 cases indicate that menstruation in its establishment, or later, if abnormal, intestinal disorders, and naso-pharyngeal disease are among the causes of plastic choroiditis, either as direct causes or by altering the resisting power. Cases of obscure etiology show a greater tendency to relapses; the changes in so-called chorioidal hyperaemia demand guarded prognosis and repeated examinations.

The Diagnostic Significance of Keratitis Punctata. By Dr. Harry Friedenwald, Baltimore. The writer said that keratitis punctata interna or decemititis is observed in various vascular diseases, is found in every case of iritis, is an almost constant sign of exudative choroiditis and sometimes found in syphilitic choroiditis and acute and chronic cyclitis. When no other signs of uveitis are noted except decemititis it is due to carelessness in examination. The writer has reported 53 cases, and even including the earlier ones, in which the examination was not made with the thoroughness of later years, and those in which opacities of the media prevented examination, about three-fifths had exudative choroiditis. It is due to carelessness in examination that so many cases are recorded as serous iritis and serous cyclitis; exudates in the anterior portion of the chorioid may be beyond the reach of ophthalmoscopic examination; we find decemititis in choroiditis only when there is exudative inflammation. "Serous iritis" and "serous cyclitis" have no clinical basis and the terms should be discarded.

Injuries of the Eye Productive of Diseases of the Uveal Tract. Dr. Howard F. Hansell, Philadelphia. The writer said that the ocular injuries that produce disease of the uveal tract includes the great majority of traumatisms to which the eye may be subjected and that apparently insignificant injuries are sometimes followed by disastrous results; that the character and intensity of the disease depends upon the nature of the injury and the condition of the patient when the injury is received; contusion, concussion, penetrating and incised wounds and the entrance and lodgment of foreign bodies, will almost always induce a plastic or purulent inflammation of the uveal tract from which recovery is seldom complete, and partial or complete loss of vision common; syphilitic, diabetic and tubercular diathesis delay recovery; the diseases are modified by early surgical treatment; enucleation is to be practiced immediately when a foreign body lies imbeded in the ciliary region and cannot be extracted, or when the eye is mangled.

The Pathology of Uveitis. Dr. W. H. Wilder, Chicago. The writer said all the divisions of the uveal tract, iris, ciliary body and chorioid may be involved by severe inflammation of any of them. He considered particularly lesions of the chorioid. A satisfactory classification is difficult; may be grouped in plastic, serous and purulent forms; in acute suppurative choroiditis there is rapid infiltration of the vascular layers, vessels become blocked, external layers become distended by exudate; the retina is lifted up and becomes involved in the inflammatory process; vitreous becomes turbid and intraocular tension is increased. Panophthalmitis may result. Most cases are of traumatic origin, but may be metastatic, or pseudo-glioma may result. In chorio-retinitis and central choroiditis changes in the vitreous may precede the choroiditis. The writer had observed opacities of the vitreous so fine as to escape hurried examination without a mydriatic precede manifest chorioidal lesions.

Certain Non-specific Lesions of the Uveal Tract and Their Treatment with Pilocarpin Injections and the Sweat Bath. Dr. T. A. Woodruff, Chicago. The author observed that in the treatment of diseases of the uveal tract, especially in exudative choroiditis, diseases of the vitreous and chronic irido-cyclitis, very few remedies were of value. Disturbances of the general health is a frequent cause of inflammatory degeneration of this tract, although in many instances the etiological factor is shrouded in mystery. Although many lesions are irreparable, a large minority are capable of some improvement. Notwithstanding the claims of many recent remedies—for example, the internal administration of thiosinnamine, subconjunctival injections of mercury, etc.—none of them gives as good results in selected cases as the hypodermic injection of pilocarpin, in gr. ⅛-¼ doses in conjunction with the sweat bath and the internal administration of potassium iodide. Sufficient emphasis has not been placed upon the extreme value of these agents in certain deep lesions of the eye.

Discussion.—Dr. de Schweinitz, Philadelphia, said he desired to emphasize, as his colleague, Dr. Friedenwald, had done, the great importance of investigating the fundus in these cases. He believed the old methods of treatment were best, and had never seen a case in which some benefit could not be derived from mercury.

Dr. Short, Georgia, called attention to the great prevalence of the disease among negroes and that females were especially predisposed.

Dr. Zeigler, Philadelphia, said that turpentine was also an excellent remedy in this class of cases and thought its action somewhat similar to that in typhoid fever.

Dr. J. E. Colburn, Chicago, said he had been struck by the tendency to recurrence of certain types of uveitis in the late winter or early spring months and he had observed a number of cases in which he could predict a return of the trouble in the months of March and April, and in these cases he had noticed that elimination by the kidneys was below normal, with sometimes a slight suggestion of albumin.

Dr. Connor, Detroit, had obtained good results in the chronic cases by the use of potassium or sodium iodid, beginning with small doses and systematically increasing it.

Dr. E. J. Gardner, Chicago, spoke of the value of exercise and electricity, saying they were excellent adjuvants.

Dr. Hiram Woods, Jr., Baltimore, in closing, said the cases were much more frequent among females and agreed with Dr. Woodruff as to the value of pilocarpine.

Address of Chairman of Committee on Exhibit of Early American, British and Colonial Ophthalmologic Literature. Dr. Casey A. Wood, Chicago. The speaker said it was impossible to divorce ophthalmic from general medical literature. The Greek schools derived much of their knowledge of ocular therapeutics from the Egyptians; in the ancient Nile region there were "eye doctors." From the Greek school the Roman oculists arose, followed by the Arabian ophthalmologists. He referred to the work of Bartholomew Traheron (1543), in which cataract was referred to as a "slymy humor coming about the apple of the eye." The first separate and complete treatise on the eye in English was by Richard Banister, who early observed the hurt done to inflamed eyes by the application of astringent remedies. In the exhibit is a first edition of Newton's book, which played an important role in the knowledge of ophthalmology. One of the best known surgeon-oculists of the eighteenth century was Thomas Woolhouse, followed by his pupil, John Taylor; the former was the author of many books on the eye and the first to suggest the possibility of making an artificial pupil. In 1759 William Porterfield published his masterly treatise on the eye, and in 1743 William Rowley published a work illustrated by plates made from engravings on steel and copper. John Ware, who died in 1816, wrote many books on ophthalmology. At first the British and French ophthalmologists were best known, but were shortly eclipsed by the German surgeons. Then appeared that greatest of all British text books by William Mackenzie. The first complete work published in America was by John Saunders, who was the first to establish a hospital for eye diseases. The first text book by an American writer was that of George Frick. Americans early begun to push forward the car of ophthalmologic progress. Isaac Hays, the first editor of the *American Journal of Medical Science,* was a voluminous writer on ophthalmic subjects. The first Canadian treatise was by Henry Howard, of Montreal, in whose work there is a description of removal of a cataract with an arrow-headed knife. In concluding, Dr. Wood called especial attention to the excellency of the text book by William Mackenzie, and said there was not today a more accurate account of external diseases of the eye.

Neuro-Epithelioma Retinae (*Glioma*) *with Report of Cases.* Illustrated. Dr. C. R. Holmes, Cincinnati. The writer reviewed the history of the subject and considered the question of whether or not this class of tumors should be classified with the sarcomas. He considered the macro and microscopic appearance and differential diagnosis. He said no case had yet been recorded where the disease had traveled from one eye to the other; that although both eyes are affected in a large percentage of cases, the disease starts independently in each eye, a fact he considered of interest inasmuch as it would argue in favor of double enucleation to preserve life if performed early. He then discussed several cases in detail.

Discussion.—Dr. Herman Knapp, New York, reported three cases bearing on the subject.

Dr. Weeks, New York, spoke of the involvement of mesoblastic tissue in those tumors and thought the term glio-sarcoma particularly applicable.

Dr. Hyers, Cincinnati, referred to a case in which nine years had elapsed since the enucleation and patient was in good health.

Dr. Baker, Cleveland, spoke of the difficulties of diagnosis and said several weeks ago he had enucleated an eye which he and several other oculists had called glioma, but which the pathologist said was not glioma.

Dr. Jackson, Denver, referred to a case he had had recently in an adult where the appearances were such that had it been a child he would have been led to make a diagnosis of glioma.

Dr. Pyle, Philadelphia, spoke of a case where diagnosis of glioma had been made and on enucleation it was found to be a sub-retinal cysticercus.

Dr. Risley, Philadelphia, said there was often great difficulty in diagnosis and the child should be given the benefit of the doubt always.

Detachment of the Retina. Dr. R. L. Randolph, Baltimore. The writer had been impressed with the results obtained by Dr. Winselmann and others with sub-conjunctival injections of salt solution and recited two cases in which he had put the treatment to the test, and in which it was undoubtedly beneficial. He thought the tendency of the method was to do good.

Discussion.—Dr. Holmes, Cincinnati, spoke of the operative treatment of these cases and said the results had not been very brilliant.

Dr. Herman Knapp, New York, spoke of the benefit of iridectomy in secondary complications and said the eye might often be preserved with partial detachment.

Dr. Risley, Philadelphia, thought the salt injections had a tendency to do good and said that he had seen the retina reattach itself, but that the detachment always recurs.

The Disappearance of Opacities of the Crystalline Lens. Dr. Walter Pyle, Philadelphia. The writer briefly reviewed a previous paper on the spontaneous disappearance of senile cataract and spoke of the artificial production and dissipation of lenticular opacities and of the disappearance of opacities after traumatism. He said there is no question of the authenticity of many reports of the spontaneous disappearance of senile cataracts; that it is not uncommon for opacities as a result of traumatism to disappear, even when the capsule has been penetrated. He said too much stress could not be laid on the value of personal hygiene, treatment of local disorders, careful refraction and proper use of the eyes in arresting the progress of incipient cataract; in certain cases secondary to nutritional disturbances, opacities might disappear under proper treatment. The non-operative treatment of cataract as practiced by charlatans and irregular physicians is worthless, dangerous and consists of no beneficent measures not known and properly used by all reputable oculists.

Dr. Nelson M. Black, Milwaukee, reported for Dr. Würdemann three cases of lenticular opacities which were absorbed or greatly improved by treatment, which consisted of rest, atropia, alteratives—mercury and arsenic—and regulation of diet.

Dr. Taylor, Wilkesbarre, said that undoubtedly many cases remain stationary or vision slightly improves, and that in some cases the opacities do entirely disappear.

Dr. Appleby, St. Paul, recited a case in which opacity of the lens produced by a foreign body had cleared up and the patient had vision of 20-30.

Dr. Standish, Boston, said the cases of injury by foreign body followed by clearing up of the opacity were only where the foreign body was exceedingly small and the wound a minute one; when a lacerated wound is made the lens is doomed.

The Anatomy of the Ocular Muscles and Their Accessory Structures. Dr. J. Elliot Colburn, Chicago. The writer's observations were based upon the study of two hundred cases examined for errors of refraction. He said the size and mobility of the eyes seem to vary with the size, shape and position of the orbital cavity and its relation to the plane of the face; there is a direct relation between the angles of the base of the orbits and the facial plane. He considered three types, the emmetropic, hyperopic and myopic. The orbital apices were nearer together in the myopic type. The facial plane was determined by a line drawn through the attachments of the tendo-oculi and orbicularis palpebrarum; plane of the base by drawing lines from these points to outer angles of orbits. He considered the anatomic differences in the development of special types. Hyperphoria occurs most frequently in unsymmetrical orbital planes, the direction of the error following the most marked displacement.

The Physiology of the Ocular Muscles. Dr. E. C. Ellett, Memphis, Tenn. The writer referred to the planes of reference and rotation and axes of rotation, and spoke of the need of a definite and accepted nomenclature of the ocular movements, with suggestions for such a table. He said that rotation about the antero-posterior axis never occurs in a normal eye, and that "false torsion" does not exist.

Principles Controlling Operative Interference in Heterophoria. Dr. E. J. Gardiner, Chicago. The writer advised thorough examination of the patient and exclusion of errors of refraction, with repeated tests of muscular imbalance with careful regard for the power of each muscle. Correction of the ametropia and anisometropia may be all that is required. It should be determined whether the defect depends on the predominance of one muscle, or upon weakness of the opposing muscle and whether the condition is inherent or induced. He thought orthoptic exercise and electric treatment should precede operative measures. He said, if in doubt do not operate.

Principles Controlling Non-operative Treatment of Heterophoria, Including the Use of Prisms and Prism Exercise. Dr. S. C. Ayers, Cincinnati. The writer spoke of the frequent occurrence of heterophoria in girls and boys who are physically not well developed, but are often strumous and ill nourished; in girls just before the menstrual function develops and in boys about puberty. He said more regard should be paid in the public and private schools to the differences in physical and mental vigor. Much can be accomplished by the correction of the ametropia, the judicious use of prisms and freeing them from the restraints and exactions of school life. Operative measures should not be resorted to until all other resources have been exhausted. We cure esophoria and convergent strabismus by proper adjustment of glasses, though it takes months and years to do it. We should give the weak interni the same chance we give the weak externi.

Discussion.—Dr. Risley said that it came down to this, that the man who got the best results was the man who had the widest knowledge and best judgment, and referred to the importance of taking into consideration the various reflexes, and cited various disorders as causative, pelvic troubles being a frequent factor.

Dr. Bates, New York, called attention to the value of the tropometer in these cases.

The Principles Controlling Operative Interference in Strabismus. Dr. Edward Jackson, Denver. The author said that two kinds of structures share in determining the positions of the eyes, neuromuscular and connective tissues. The latter may determine the position for a time, but the former ultimately predominate. The capacity for hypertrophy under the proper nerve influence is the most distinctive characteristic of muscular tissue. Hence a muscle is too strong or too weak, according to the nerve impulses it receives. The function of a particular eye muscle is, not to effect a single movement of the eyeball, but to take an appropriate part in almost every ocular movement. Its importance as a secondary rotator in effecting certain movements comes close to its importance as a primary rotator for other movements. He then considered the various operations for the correction of strabismus.

Principles Controlling the Non-Operative Treatment of Strabismus. Dr. George M. Gould, Philadelphia. The author refered to his suggestion, made in 1893, at the Pan-American Medical Congress, and more fully set forth in articles in the *Medical News* of Oct. 4, 1893, and Nov. 18, 1893, that heterophoria is an innervational disease, and that therefore surgery is not applicable or genuinely curative. A reaction against operation has taken place, and a similar one is looked for as to operation in strabismus, because strabismus is preceded by heterophoria, during which it is curable without operation. Chronic or permanent strabismus is also preceded by a stage of acute, functional, or incomplete strabismus, during which the reinstatement of binocular vision without operation is not impossible. The peripheral mechanism in strabismus is not primarily at fault. All myology resolves itself into neurology. The non-operative treatment consists in:

1. Prophylaxis.
2. The treatment of ametropia.
3. The treatment of heterophoria.
4. The treatment of amblyopia.
5. The treatment of physiologically curable strabismus.
6. The treatment of alternating strabismus.
7. The treatment of anomalous cases.
8. The treatment of incurable cases.

Prophylaxis consists in instruction of the public and of parents as to the prevention of strabismus by placing the care of the child in the oculist's hands from the age of one year on. Anisometropia and strabismus are the two great causes. Glasses from about the age of two years will prevent strabismus. They can be prescribed by retinoscopy only. The treatment of heterophoria was described in the author's paper before the section last year, and the treatment of amblyopia in the *Medical News* of Dec. 31, 1892. All cases are physiologically curable if taken in hand early enough. The treatment of alternating strabismus is exceptional, and in anomalous and incurable cases operation is not advised as the results are not usually real or permanent cures.

Dr. Nelson M. Black, Milwaukee, spoke of the non-development of the fusion center as a factor in these cases, and said it was well to first find out the degree of fusion of the eyes and then proceed to the refraction under mydriatics. He also referred to the value of the ambyloscope.

Dr. M. Stevenson, Akron, Ohio, said the first thing to be done was to determine the condition at rest and said the great reason we had so much trouble with the external ocular muscles was due to the amount of close work and the convergence necessary. We should not only use the Maddox rod for distance, but should determine the condition for near work, too. He had used the ambyloscope with considerable success.

Dr. F. Valk, New York, did not think it would be proper to condemn a pretty child to go on for years with one eye turned in, with the hope that some day by exercises it would turn out properly. It is not fair to the child.

Dr. S. D. Risley, Philadelphia, said binocular vision was a matter of experience; it is acquired as are other things in life. He could relate many instances of persons removed from invalidism by tenotomy after other means had been exhausted.

Dr. E. J. Gardiner, Chicago, believed there were many cases in which nothing short of tenotomy would be of benefit.

Dr. Jackson, Denver, said the elasticity of the muscles on a given day might depend upon the innervation of preceding days; they vary in their length and in their strength. He thought there was no more reason to suppose that the excessive action of the internal rectus, for instance, is related to some peculiar shape of the bones of the orbit than to suppose that thickness of the biceps is due to the shape of the humerus.

Dr. A. A. Hubbell, Buffalo, N. Y., delivered an address *commemorative of the* 150*th anniversary of the publication of the first description of the cataract operation, by Jacques Daviel, and the beginning of the modern operation of cataract.* He said it was somewhat divergent from the ordinary scientific program, but he thought it well sometimes to pause and look back at these things purely from an historical standpoint; that we had honored Helmholtz by public celebration and public tribute, and had honored Donders, but had perhaps forgotten the man who originated the modern operation for cataract, Jacques Daviel. The address was not a history of cataract operation, except as it touched the life of Daviel, which it reviewed from the beginning.

Test Objects and Test Letters. Dr. Elmer G. Starr, Buffalo, N. Y. The writer considered the importance of painstaking care and accuracy in determining the refraction of the eye and referred to its great value for the relief of many disturbing conditions; a slight error in the measurement of the refraction might render valueless the attempt to relieve the patient. One of the most serious objections to the test card ordinarily employed was that the glare of light reflected from the white background produces retinal fatigue. He spoke of the effect of irradiation in the use of the card with black background, which wás to increase the apparent size of the object and lessen the sharpness of outline. The writer showed a series of letters he had devised, which were in color on a ground of another color, the colors used being yellow and blue, which are complementary. The glare of light and retinal fatigue is lessened and the letter is strengthened and made more brilliant. Yellow is used for the ground and blue for the letter, which being complementary brings out the letter more sharply defined.

Discussion.—Dr. Gould said the black background being a non-stimulating color to the retina did not tire and fatigue it, especially where accommodation is paralyzed. 20-10 could be read easily with it, because the retina acts physiologically. He thought Dr. Starr's ingenious device deserved further consideration.

Dr. E. J. Gardiner, Chicago, suggested that the irradiation spoken of by Dr. Starr might be due to uncorrected astigmatism.

Dr. Randall, Philadelphia, called attention to the importance of proper regard for the size of the letter and said that 99 out of 100 make it according to the tangent of the angle, while twice the tangent of one-half the angle was the correct thing.

Dr. Starr said, in closing, that as to the suggestion of the irradiation being due to uncorrected astigmatism, it was, of course, worse in that condition, but he had found it troublesome at all times.

Metastatic Sarcoma of the Chorioid. Dr. Meyer Weiner, St. Louis. The writer spoke of the extreme rarity of the disease and the scant literature upon the subject. He described a case occurring in his practice, considering the probable location of the primary growth and the organs involved. There were multiple metastatic lesions of the chorioid in both eyes.

Dr. Weiner replied, in answer to a question of Dr. Jackson's, that he did not get any history from the patient at all, did not see the case until post mortem, and had simply reported the case because of its rarity. The growth probably started in the mediastinum and corresponded in many ways with a similar case reported by Dr. de Schweinitz.

The Use of a Mydriatic After Forty-Five Years of Age. Dr. H. M. Starkey, Chicago. The writer said a mydriatic was often required for proper estimation of refraction with the ophthalmoscope and for examining the media and fundus. He said there was absolute necessity for cycloplegia in certain cases before the refraction could be properly determined, and advised cycloplegia in other cases, not only for purposes of refraction, but for the relief of retinal and chorioidal hyperæmia and irritation. He thought that while cycloplegics were required in fewer and fewer cases as life advanced, no age could be arbitrarily fixed beyond which they should not be used, but they should be used with caution after the age of forty because of the greater danger of glaucoma in the elderly, and, of course, in certain conditions should not be used at all.

Discussion.—Dr. Herman Knapp, New York, spoke of the use of a cycloplegic after operation for glaucoma where in healing there occurred a number of fine filiform adhesions; he used a drop of atropin on the first and second days. Had never seen any unpleasant result. He considered that the danger of producing glaucoma was less with eucaine than with homatropine or atropin.

Dr. Weeks, New York, said the late Dr. Noyes used atropin after iridectomy as a routine practice and kept it up for two or three days, or until the wound was well closed.

Dr. Risley, Philadelphia, said it had not been his habit to use a mydriatic after iridectomy for glaucoma and thought it might not be free from danger.

Dr. Higgins, Cortland, N. Y., thought it was an unfortunate thing that patients referred any eye symptom that might arise for months or years after the insillation of a mydriatic to its use, but thought also that in persons past middle life these symptoms were not altogether imaginary.

Dr. McReynolds, Dallas, Texas, said he always used a mydriatic after operation for glaucoma and glaucomatous cataract and considered it a reasonably safe thing to do.

Dr. H. B. Young, Burlington, Iowa, said he believed that the use of a cycloplegic in persons after forty-five for refraction was especially indicated in strong, robust people, where the power of accommodation was excessive, and did not think these people at all liable to develop glaucoma.

Dr. Lippincott, Pittsburg, said in his earlier practice he had used mydriatics in persons past forty-five more frequently than he did now, and had seen ill effects from their use in several cases.

Dr. Jackson, Denver, said mydriatics should not only be used with caution after the age of forty, but should be used with caution always. The only case of glaucoma he had seen produced by a cycloplegic was in a woman of 25, and he had no doubt that if the history had been carefully looked into before using the drug a diagnosis of glaucoma might have been made. He considered that it is often as necessary to use it after the age of fifty as before.

Dr. Bates, New York, reported a case in which atropin had been used in a patient aged 18, and where the pupil failed to contract and remained dilated for six months after its use.

In closing, Dr. Starkey said he had found it necessary to use stronger cycloplegics and for a longer time in older people than in younger ones in order to get relaxation.

The Decentering of Lenses for Near Work. Dr. G. C. Savage, Nashville, Tenn. The writer said that if there were no muscle error presbyopic lenses should be properly centered, so placed that the visual axes would pass through the optical centers. In orthophoria the placing of presbyopic lenses with their optical centers low would be preferable to placing them high. In simple esophoria, both presbyopic lenses should be decentered out, and equally, or what would be the same thing, the frames should be made wider than called for by the pupillary distance. In esophoria complicated with hyperphoria of one eye and cataphoria of the other, the decentering of presbyopic lenses should be confined to the lens for the eso-hyperphoric eye and should be down and out. In simple exophoria, both presbyopic lenses should be decentered directly in, and equally, or the frames should be made narrower than indicated by the pupillary measurement. In exophoria complicated by hyperphoria of one eye and cataphoria of the other the decentering should be confined to the lens for the exocataphoric eye and should be up and in. In exophoria complicated by hyperphoria of one eye and cataphoria of the other and plus cyclophoria the decenteration should be confined to the lens for the exocataphoric eye and should be up and in. In hyperphoria of one eye and cataphoria of the other, with or without plus cyclophoria the whole prismatic effect should be given to the lens for the hyphoric eye; decentering should be down. In double hyperphoria, both lenses should be decentered down. In double cataphoria both lenses should be decentered up.

The Genesis and Treatment of the Myopic Eye. Dr. S. D. Risley, Philadelphia. The writer considered the origin of the myopic eye as to heredity, disease, physiologic and sociologic evolution and discussed the clinical aspects of myopia in its higher degrees and considered the various methods of treatment.

Discussion.—Dr. Jackson, Denver, said that in the cases of high myopia he had seen nothing that pointed to heredity; none of them had myopic parents. But they showed marked evidence of ill health and disturbance of nutrition. He thought the great majority develop during school life. He called attention to the importance of early correction of the refraction as a means of prevention of the development of high myopia, and deprecated the wearing of undercorrecting glasses.

Dr. Risley said, in closing, that he advised the wearing of undercorrecting glasses only indoors and where the tendency to progression was marked; otherwise they are sure to have headaches and discomfort.

The Need for Correcting Ametropia After Middle Life. Dr. C. M. Culver, Albany, N. Y. The writer said that even with Donder's liberal definition of presbyopia most of it begins at the time known as middle life. That it is for presbyopia that most glasses are worn. He considered ametropia as worthy of correction at any time of life, and that to try to relieve presbyopia without correcting attendant ametropia is like building on a foundation of quicksand. He considered that astigmatism changes after middle life more than before.

Discussion.—Dr. Jackson, Denver, agreed with the writer that the correction of ametropia after middle life is just as important as at any other time.

Associated Movements of the Eyes and Head. Dr. William C. Posey, Philadelphia. The writer considered the physiologic movements, including the many and various movements which the head makes through the medium of neck muscles. He said there were movements of the head and eyes which were abnormal and which, though symptoms of the same disease and having the same origin, are not related in the sense of being dependent upon one another. Under this class he included the movements of the head and eyes which occasionally occur simultaneously in disseminated sclerosis, paralysis agitans and other diseases of the cerebro-spinal system. Then there are movements of the head that are compensatory of some failure of one or more of the extra-ocular muscles to properly perform their functions, and under this class he includes the position which the head assumes after paralysis of the various ocular muscles. Other movements of the head and eyes, abnormal in character, seem to bear a direct relationship with one another without being compensatory. Under this heading he considered the subject of conjugate deviations, minors' nystagmus and head jerking in infants. The writer reported two cases of synchronous movements of head and eyes due to a central cause.

OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM.

Clinical Evening, May 1, 1902.

David Little, M. D., President, in the Chair.

Mr. H. Grimsdale showed a case of *paralysis of the Cervical Sympathetic.* There was slight enophthalmus, pupil small and reacted very badly. Vision was bad, P. L. T—3. Cocaine had no action on the pupil nor on the eyelid and there was a gray reflex in the pupil, possibly a detached retina.

Mr. Holmes Spicer thought that a purulent retinitis would explain all the symptoms and he thought the case was one of those usually called pseudo-glioma. Mr. Grimsdale thought that the failure of the reaction of cocaine proved it to be a paralysis of the sympathetic. Mr. Grimsdale also showed a case of *congenital Unilateral Ptosis* in which movements of the eyelid were associated with suction.

Mr. Adams Frost showed a case of *Multiple Ruptures of the Choroid.* This was caused by a blow from the buckle of a belt. Some of the lesions seen were more like hemorrhages than ruptures.

Mr. Rockliffe had recently seen two similar cases due to a blow with a steel hawser.

Mr. Fisher said that if some of them were hemorrhages they were in the choroid and that therefore a rupture of some part of the choroid must have taken place in order to produce them.

Mr. Frost also showed a case of an *unusual retinal reflex.* The fundus was unusually dark and the patient's father had retinitis pigmentosa. Mr. Frost looked upon this case as physiological.

Mr. Treacher Collins: A case presenting *unusual opacities in the central part of each cornea.* The patient was a carman, aged 33, whose sight had been failing for two years. There had never been any real keratitis but in the central part of each cornea are numerous white radiating lines of opacity, the periphery of the cornea is quite clear. Mr. Collins thought that these opacities were in the anterior layers of the substantia propria and were due to infiltration and degeneration with small calcareous deposits.

Mr. Bronner thought they were very superficial and might be scraped. Mr. Lawford had a somewhat similar case in a woman aged 21 who has had recent ulcerative keratitis. This has given rise to a central corneal opacity without injection but with great photophobia. He scraped the cornea and this is now being examined bacteriologically. He suggested that this might be done in the present case.

Mr. L. V. Cargill. A case of *Corneal Opacity after Instrumental Delivery.* The case was a difficult brow presentation in which great force had been used with the forceps. The condition was clearing and only a slight band of opacity now remained across the cornea.

Mr. G. W. Thompson. A case of *Obliteration of a Retinal Artery Following Attacks of Temporary Amblyopia.* The patient is a woman who for the last ten years has suffered from severe headaches with temporary loss of vision. In September last she had an attack from which the vision has never properly recovered, the dimness she then noticed persisting to some extent.

As a rule the vision returns after the attack has passed off. The disc is now partially atrophied.

Mr. Lawford thought this represented a most important class of cases, seeing how common temporary loss of vision is in association with migraine, and how seldom it is that ophthalmoscopic changes are seen in connection with it. Some of them may be caused by spasm of the vessel which leaves the artery no less patent than it was before. He had recently had under his care a man aged 35 who habitually overworked himself, and who, after being much underfed during Lent, had developed dimness in the right eye which has persisted. For many years he has had temporary attacks of dimness, but now there is partial obliteration of one of the retinal arteries with hemorrhages, and at other places are seen old changes which apparently indicate lesser lesions of a similar nature in times gone by.

Mr. A. H. Thompson asked if it were a case of endarteritis obliterans, as he hardly thought spasm would last for so long a time.

Dr. James Taylor thought that this case was similar to cases of temporary loss of function of some portion of the brain. This sometimes leads to permanent changes.

Mr. R. D. Batten described a somewhat similar case.

Mr. Roll drew a parallel between this condition and Renaud's disease.

Mr. Fisher thought the tendency of opinion was that arterial degeneration was always present. This he did not consider was the case.

Mr. Thompson in reply was inclined to the opinion that there was enderarteritis present.

Dr. Bronner showed some *Sections of a Conjunctival Lipoma* in an infant.

Mr. Rockliffe. A case of very rapidly *Recurring Glioma of the Orbit.*

Mr. Lang showed a child whose *orbit had been wounded* with a pitchfork. The ophthalmoscope showed a white patch of exudation where the disc should be and he thought that the optic nerve was torn across close behind the globe.

C. DEVEREUX MARSHALL.

THE DETROIT OPHTHALMOLOGICAL AND OTOLOGICAL CLUB.

The monthly meeting was held Tuesday evening, May 20th, 1902, at the office of Dr. Don M. Campbell, who presented the following paper on *The Roentgen Rays in Ophthalmic Practice.* Paper in full page 378.

Dr. Maire reported a case of *Foreign Body in Eye Setting up Sympathetic Irritation after Thirty-eight Years.* A small sliver of wood was found after enucleation of injured eye passing through ciliary body. There had been no previous attack of irritation.

Dr. Campbell showed an eye which he had recently enucleated which had received a large penetrating wound of the eyeball in the patient's youth. Recently the fellow eye became irritable and it was deemed advisable to remove this small atrophied globe. Upon opening the eye a condition of ossified choroid was found.

Dr. Campbell called the attention of the Club to the subject of the *Schleick Method of Local Anaesthesia in the Management of Entropia of the Lower Lid.* The tablet consisting of cocaine muriate one-tenth grain, morphia sulph. one-fortieth grain, sodium chloride one-fifth grain, one-half a drachm of water, and with a hypodermic needle the solution is injected into the substance of the skin of the lower lid. Anæsthesia is immediate and, as the following report shows, perfect: Mrs. K. contracted gonorrhœal ophthalmia a year ago, the diagnosis being confirmed by bacteriologic findings. Upon the subsidence of the acute inflammatory difficulty a condition clinically identical with trachoma was left and in the course of a few months there developed a complete entropion of each lower lid. Schleick's injection was made in an appropriately large piece of integument and subcutaneous tissue was removed and three stitches introduced and the edges of the wound accurately coaptated. No hurry was necessary and the patient suffered absolutely no pain or reaction. A week later the procedure was repeated on the lower lid. In each instance the healing was by first intention, showing that the injection in no way interfered with primary union. For rapidity of action, completeness of anæsthesia, absence of all unpleasant constitutional effects and promptness of union, nothing could be better.

Dr. Parker reported a case of *Cerebral Abscess in the Temporo-sphenoidal region.* The abscess was located and pus evacuated after trephining. Early operation was refused. The patient, unconscious at the time of the operation, died twenty-four hours later.

Reported by Walter R. Parker, M. D., Secy.

CORRESPONDENCE.

DR. REYNOLDS' DISCUSSION IN REPORT OF WESTERN OPHTHALMOLOGIC ASSOCIATION.

Louisville, Ky., May 23, 1902.

To the Editor of The Ophthalmic Record:

Sir:—At page 290 of The Ophthalmic Record for May, 1902, in discussing the paper of Dr. George F. Suker, your reporter has made me say, in the fourth line from the bottom of the page, "The lens was not extracted." This is a mistake. I extracted the lens from the eye under consideration on the 13th of September, 1892. The wound united promptly and the patient did well until the 26th of September, when painful tension came on. I then performed iridectomy, and the eye made an uninterrupted recovery. The patient was not permitted to use the eye until December 2, 1892, when glasses were prescribed, with which she saw $= \frac{6}{\text{XXIV}}$ Snellen. She was warned against any attempt at reading. The eye remained free from irritation, and the patient being in good health she was allowed, on the 13th of May, 1893, to have glasses for reading, when it was found her sight $= \frac{6}{\text{XVIII}} +$ Snellen. She has continued in the enjoyment of useful vision, being able to read and sew ever since that time.

The point I made in the discussion was that cases of this kind are wholly unlike those subjected to reclination, because the partial dislocation of the lens in this case was due to cutting the suspensory ligament with a sharp instrument; while, in reclining or couching, the lens in its capsule, being forced into the vitreous chamber, results in injury to the ciliary processes, which are always more or less torn, giving rise to cyclitis, or other form of destructive intraocular disease.

I note also at page 273, in opening the discussion of the papers of Drs. Prince and Colburn, I am made to say, and perhaps did say my first operation for the correction of cyclophoria was reported in the *American Practitioner* for November, instead of March, 1873. The operation was done on the 24th of November, 1869, on a boy 14 years of age.

Please make these corrections, and oblige,

Yours truly,

Dudley S. Reynolds.

NEWS ITEMS.

PERSONALS AND ITEMS OF INTEREST SHOULD BE SENT TO
DR. FRANK ALLPORT, 92 STATE ST., CHICAGO.

Dr. H. O. Reik, of Baltimore, Md., has been spending several weeks on the Pacific coast.

Dr. T. A. Woodruff, of Chicago, has been appointed oculist to the Baptist Hospital, of Chicago, Ill.

Dr. C. R. Holmes, of Cincinnati, Ohio, was elected Third Vice-President of the American Medical Association.

Dr. A. Edward Davis has resigned from the staff of the Manhattan Eye and Ear Hospital, of New York City.

Dr. Newbold C. Jones was elected to the Ophthalmological Department of the Royal Victoria Hospital at Montreal.

Dr. Clarence R. Gardiner has been recently appointed oculist to the Cooley-Dickinson Hospital, of North Hampton, Mass.

Dr. William E. Gamble, of Chicago, recently presided at the Chicago Alumni Association of the Iowa State College banquet.

Dr. Albert B. Hale, of Chicago, will spend the summer abroad. He will be absent from his office from June 15 to September 15.

Dr. H. V. Würdeman, of Milwaukee, has been elected Professor of Ophthalmology in the Chicago Eye, Ear, Nose and Throat College.

Dr. Charles A. Oliver, of Philadelphia, left for Europe immediately after the American Medical Association, to remain for two months.

The Londonary Eye and Ear Hospital, of Ireland, reports having received 1,468 externe patients and nine interne patients during the past year.

Dr. Frederick M. Pendleton has recently been appointed oculist to the Blessing Hospital at Quincy, Ill. Dr. Frank E. Tull, consulting oculist.

Dr. S. D. Risley, of Philadelphia, read a paper before the American Academy of Medicine at Saratoga, on "Good Vision as a Factor in the Educational Process."

Dr. Herbert Harlan, Professor of Ophthalmology, and Dr. Francis M. Chisholm, professor of the same branch, on the Woman's College in Baltimore, have resigned.

Dr. Dudley S. Reynolds, of Louisville, Ky., read a paper on "The Tobacco Habit" before the American Medical Life Insurance Examiners and Surgeons, held at Saratoga, June 9.

A dinner of the Ophthalmological Society of the United Kingdom was held in London, June 13, with Dr. Little, the President, in the chair. Prof. Fuchs, of Vienna, delivered the Bowman lecture.

Dr. Casey A. Wood, of Chicago, officiated as toast master at the Alumni dinner of the Medical Department of the Illinois University, which held its annual banquet at the Auditorium Hotel early in May.

Hospital for Deaf and Dumb Institute.—The new hospital building at the Deaf, Dumb and Blind Institute, Berkeley, is nearly completed. The building has cost $6,500. Dr. Oliver D. Hamlin, Oakland, will have charge of the hospital.

Eye, Ear and Throat Hospital Report.—The annual report of the South Baltimore Eye, Ear and Throat Charity Hospital and Dispensary, which was opened May 1, 1901, shows 433 cases treated, 2,061 visits to the dispensary and 82 surgical operations performed.

While in Buffalo, N. Y., Prof. Haab was pleasantly entertained for three days at the residence of Dr. Alvin A. Hubbell. He was much interested in the Ophthalmological Hospital of that city and also in the cataract of Niagara, which, he freely admitted, could not be extracted by any method with which he was acquainted.

Dr. Dudley S. Reynolds, of Louisville, Ky., read an interesting paper on "Nasal Obstructions" at the last meeting of the Kentucky State Medical Society. He spoke highly of the use of adrenalin to facilitate the making of a correct diagnosis, as between bone growths, ordinary neoplasm, foreign bodies, pharyngeal growths, etc. The paper was discussed by Drs. Cheatham and Coomes.

The Board of Health of the City of New York at a recent meeting placed acute conjunctivitis on the list of contagious diseases. This will make it necessary for every physician to report such cases to the Health Department. Many such cases have been prevalent of late among school children, and to prevent its spread it has been put on the list, and measures will be adopted for fighting the disease.

Dr. William Campbell Posey has been elected attending surgeon to the Wills Eye Hospital, in place of Dr. William Thomson, resigned. Dr. Posey is Professor of Ophthalmology in the Philadelphia Polyclinic, has recently edited an American edition of Nettleship, and, in conjunction with Dr. Jonathan Wright, of Brooklyn, has edited a System of Diseases of the Eye, Ear, Nose and Throat, which is about to appear.

Dr. Herman Knapp, the distinguished ophthalmologist of the College of Physicians and Surgeons, celebrated his seventieth birthday recently. At his suggestion the New York Ophthalmic and Aural Institute, of which he was the founder, is to be removed and equipped after modern methods. The trustees have already subscribed $100,000 for this purpose, and about $400,000 more are needed to build the new institute.

Ophthalmia a Notifiable Disease.—The Board of Health of the state of New York has declared ophthalmia, both acute and chronic, to be a contagious disease. Under this decision physicians will be required to report promptly to the Department of Health all cases of the disease that they may find. The Board of Education will also be asked to lend its aid toward stamping the disease out of the public schools, where it is now prevalent.

The Benn Ulster Eye and Ear Hospital, of Ireland, reports having received 1,992 patients the past year. They have increased the price of beds from 10s to 15s. The total income the past year was £870 8s 1d. The expense, £715 9s 1d. A careful investigation concerning the etiology of diseases admitted to this hospital for the past few years have disclosed the fact that, especially in young children, a vast majority of the diseases can be traceable to bad hygiene.

Dr. George F. Carey died yesterday at his home, 142 East Nineteenth Street, New York City, following an operation for Bright's disease. He was 66 years old and was a specialist in diseases of the eye and ear. He was a graduate of the College of Physicians and Surgeons, and had been attached to the staffs of St. Francis, the Manhattan Eye and Ear and the New York Foundling Hospitals. His wife died about a year ago, and his funeral will be held on the anniversary of her death. He leaves one daughter, Mrs. Joseph Owens, of Brooklyn.

The following officers were elected at the meeting of the American Laryngological Rhinological and Otological Association, held in Washington, June 3 and 4.

Dr. Joseph A. Stucky, Lexington, Ky., President. Drs. Marshall R. Ward, Pittsburg, Pa.; Lewis C. Cline, Indianapolis, Ind.; Dunbar Roy, Atlanta, Ga., and Patrick F. Gildea, Colorado Springs, Col., Vice-Presidents and Chairmen of Sections. Dr. Wendell C. Phillips, New York City, Secretary. Dr. Ewing W. Day, Pittsburg, Pa., Treasurer. The next meeting will be held in Lexington, Ky.

The meeting of the Ophthalmological Section of the American Medical Association in Saratoga showed the largest enrollment of actual members that has ever occurred in its history. At previous meetings, to be sure, a larger number of names has been placed on the registration books, but up to the Saratoga meeting, anybody who cared to could write their names upon the books, without regard to their being actual members of the American Medical Association or not. The enrollment this year numbered 121, and was confined exclusively to those who are actual members of the American Medical Association. The registration, therefore, was most satisfactory and mirrors the interest taken in the Section by ophthalmologists throughout the country. This statement becomes emphasized when it is remembered that the Saratoga meeting in general was very much below the average in attendance. An encouraging feature of the Section was the number of men seen from the state of New York This indicates that the professional rupture in that state is subsiding.

The Ophthalmological Section of the American Medical Association is, without question, the greatest and most important ophthalmological society in the United States, and it is hoped and believed that the interest shown in its work at Saratoga will be but an indication of its future labors.

During Prof. Haab's visit to Chicago he was a guest of Dr. Frank Allport. Monday evening the Chicago Ophthalmological and Otological Society tendered him a reception and banquet at the Wellington Hotel, at which thirty-five physicians sat down to table. The supper was excellent and Dr. Hotz officiated as toast-master for the evening, and was most felicitous in his introductions of the speakers. Prof. Haab responded to a toast most feelingly, saying that he deeply appreciated the courtesy shown him by his American colleagues, and expressing a conviction that ophthalmology should not be a sectional science or one confined to any country or people, but should be international, and that ophthalmologists the world over should feel themselves united as members of one family.

Among those who responded to toasts were Drs. Wilder, Bulson, Moyer, Wood and Allport.

During his visit in Chicago Dr. Haab was the recipient of many courtesies from his American colleagues, and he was shown most points of interest by various members of the profession. He enjoyed his visit to the University of Chicago particularly, expressing unbounded admiration for the institution, saying that he believed it would not be long before European parents will send their sons to this institution for education. One feature of Prof. Haab's visit that greatly interested him was the enormous office buildings where physicians have their offices. He was amazed at the fact that in one Chicago office in the Reliance Building fifty-three physicians transacted business.

Prof. Haab was in Chicago from Sunday afternoon until Wednesday afternoon.

Prof. Haab sailed for New York on the Kronprintz Wilhelm, arriving on Tuesday afternoon, May 27. He was met at the dock by Dr. John E. Weeks, who accompanied him to his hotel, the Waldorf-Astoria. On Wednesday Prof. Haab lunched with Dr. H. Knapp and subsequently enjoyed a drive in Central Park, visiting the Metropolitan Museum of Art. In the evening Prof. Haab, Dr. Jacoby, President German Medical Society, and Drs. Webster, Marple and Weeks were entertained at dinner by Dr. R. Denig at the German Club. On Thursday afternoon Prof. Haab was escorted to the New York Eye and Ear Infirmary, which institution he inspected in the company of Dr. Derby, the Executive Surgeon, and Drs. Callan, Dennet, Weeks and Marple. On Thursday evening Prof. Haab was the guest of the Hospital Graduates' Club, at the Hotel Manhattan, on the occasion of the seventeenth anniversary banquet, Dr. W. E. Lambert presiding. A hundred and fifteen physicians and their friends were present. Toasts were responded to by Rev. Dr. Greer, Dr. Polk, Dr. Newcomb, Prof. Haab, Dr. Delevan and others.

On Friday afternoon Prof. Haab visited the Manhattan Eye and Ear Hospital, where he was entertained by the members of the Surgical Staff. On Friday evening Prof. Haab attended a dinner given in his honor at Delmonico's; this function was arranged by a committee composed of Drs. D. Webster, John E. Weeks and W. B. Marple. There were twenty-three covers. All in attendance were ophthalmologists. Dr. D. B. St. John Roosa presided as toast master, and was very felicitious in his remarks. Prof. Haab responded to the address of welcome by Dr. Roosa in a few well chosen sentences. The toast, "The Influence of the Work of our Foreign Colleagues on American Ophthalmology," was responded to by Gruening. Dr. L. Howe, of Buffalo, read a poem; Dr. Kipp, of Newark, responded to the toast, "The Acrobatic Influence of the Magnet"; Dr. W. S. Dennett to the toast, "Why the Magnet Sometimes Fails to Work"; Dr. George de Schweinitz, of Philadelphia, "American Ophthalmology." Letters of regret from many ophthalmologists who could not attend were read by the secretary of the committee. On Saturday, at 5:30 p. m., Prof. Haab left New York for Chicago on the Lake Shore limited.

THE
OPHTHALMIC RECORD
A MONTHLY REVIEW OF THE PROGRESS
OF OPHTHALMOLOGY.

VOLUME XI. No. 8. CHICAGO, AUGUST, 1902. NEW SERIES.

ORIGINAL ARTICLES.

THE PROGNOSIS OF MYOPIA.*

BY FRANCIS VALK, M. D.,
Professor of the Diseases of the Eye in the New York Post-Graduate School and Hospital.

In presenting this subject to the Section I only wish to bring before you my own observations and experience in many cases of myopia, and to suggest to you a point in the prognosis of this condition of the refraction that, as far as my reading extends, has not been heretofore advanced in reference to the possible changes that may occur in the myopic eye, and one that may be of service to us when we are called upon for an opinion on this subject as we meet it in the office work.

Priestly Smith, in a recent paper, states that "myopia in some cases is an innocent condition, not leading to disaster of any kind, while in other cases it is a pernicious condition which leads sooner or later to serious impairment or loss of sight," and finally, "The duty of every oculist should be to suspect every myopia of a tendency to increase, until time has proved it to be stationary."

We have here presented two conditions, innocent and pernicious myopia, and we must "suspect" every case until time has proved it otherwise; but if we have two conditions, may we not make our examinations so as to decide the question as to the innocency or the danger of an advancing myopia, and, if so, then the last proposition, as advanced by Priestly Smith, has no force whatever.

It is to answer the very important question as to the innocency or the malignancy of this condition of the refraction that is the aim and object of this paper, after a careful study of a certain number of cases in my own work in private practice and which has been further confirmed by my clinical work in the hospital.

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*Read before the Section on Ophthalmology, New York Academy of Medicine, April 21, 1902.

Selecting from my case book the last one thousand cases of refraction that have come under my observation I find about 11 per cent myopic, with or without astigmatism, or a total of one hundred and fourteen. The youngest 12 years of age and the oldest 64, while many of them have been under my personal observation for several years. This is certainly a sufficiently large number for us to draw some conclusions as to the prognosis of the refractive condition, in other words, will the myopia increase or will it remain stationary?

I shall not discuss the diagnosis of myopia nor that of the treatment, as that is too well known to all oculists to need any words from myself, but I do wish to call your attention to the etiology of myopia in its reference to the prognosis and to note, as we consider these etiological conditions, may we at any time, assume the probability of its innocency or its tendency to an increase in the myopic condition to the danger point; in other words, can we draw the line between stationary and progressive myopia as we proceed with the examination of the refraction?

DeSchweinitz, page 149, as to the cause of myopia, states, "Myopia may be produced by an increased refraction of the cornea, or crystalline lens, *curvature* myopia; or by too great a length of the optic axis, *axial* myopia," and also states, "In the great majority of cases myopia is due to elongation of the optic axis," etc. He then discusses the many theories of myopia, not necessary to this paper, but in all his subsequent remarks, only refers to the well known condition of *axial* myopia. The same remarks hold true if we refer to Landolt's classical work on refraction, and, furthermore, before Donder's time, convexity of the cornea was considered the chief cause of myopia, but basing his opinion on some thirty or more cases, he says, "In highly myopic individuals, a long radius of the cornea is in fact the rule." This is certainly a condition that is not shown by the cases noted in this paper. Again, I do not wish to question Donder's final conclusions that "myopia usually depends upon the elongation, and hypermetropia upon a shortening of the axis of vision," but I do feel convinced that the curvature of the cornea does bear a certain relation to the refraction of the eye in the majority of our cases, even if some few extreme cases may show exactly the opposite condition, namely, a long radius with a very high myopia. There are many similar cases, yet that may only "prove the rule," and the tables presented in this paper, if correct, do not confirm Donder's conclusions.

Now to illustrate the object of this paper in reference to the relation between the corneal curve and the prognosis of myopia, as well as its etiology, let me recite the history of four cases from my note-books, in which I trust you may see the reasons for my conclusions.

Case 1666. Mrs. H., age 42—

R. E., w — 16. D. ⊃ — 1. D. cyl. ax. 150° = 20-20;
L. E., w — 14. D. ⊃ — 1. D. cyl. ax. 180° =20-200.

She has a small macula choroiditis producing the poor vision in L. E. Radius of curvature: Horizontal meridian, 7.5 mm.; vertical meridian, 7.25 mm. Here is a shorter radius than the normal curve of 7.65 mm., yet we have no posterior staphyloma and no changes in the myopic condition for several years, during which time she has been under my constant observation and examination.

Also case 921. Mrs. T., age 40 — V. = 20-20, each eye, with — 10 D. Radius of curvature, 7.20 mm. in all meridians. No appearance of posterior staphyloma, and when she was examined twelve years later, in 1901, the degree of myopia was the same as at first.

These two cases show a sharp curve in the cornea with no change in the myopia or at the posterior part of the eye balls up to the present time.

The opposite condition is illustrated by the two following cases:

Case 543. Mr. H. S., age 37, at first examination, in 1887—Vision = 20-50 +, in each eye, with — 13. D. His radius of curvature is 8.05 mm., each meridian. His last examination was made three months ago. Radius of curvature has remained the same, but vision is now 20-50, with — 18. D. in the left eye, an increase of 5. D. in the past fifteen years, with a large posterior staphyloma. In the right eye he has now a very extensive retino-choroiditis, large, floating bodies in the vitreous and probably a detachment of the retina. A very sad picture of progressive myopia.

Another case showing the first stages of commencing myopia is that of the following:

Case 928. Mr. J. C., age 15, first examined in 1890—R. E., 20-15 —, w — .25 cyl. ax. 180° = 20-15; L. E. 20-20, w + .25 ⊃ + .25 cyl. ax. 160° = 20-15. Here we have slight myopic astigmatism in the right eye and slight compound hyperopic astigmatism in the left eye. His radius of curvature was 7.85 mm. in the horizontal meridian and 7.75 mm. in the vertical. In 1892 he was found to have 1.50 D. of myopia in the R. E. In 1894, My. = 2. D., and in 1901 we have My. = 2.50 D., and the ophthalmoscope shows a commencing posterior staphyloma. Radius of cornea the same.

I have selected these cases, not particularly of extreme types, but cases that will forcibly illustrate to you my reasons for presenting this paper as an answer to the question of the etiology and the prognosis of myopia when the question comes to us in the daily work of the oculist.

Every one of us has had the question presented to us by an anxious parent as to the advisability of their children continuing at school when they have been found to be myopic and have certain symptoms of asthenopia, and the question also presents itself to us as ophthalmologists. Will the myopia increase or will it be stationary, innocent or malignant?

If this series of cases, combined with our present methods of examination, presents to us any lesson or fact, it seems to me one that is very important, that we should be able to answer the question as to the possible prognosis of myopia in a reasonable and scientific manner concerning nearly all our cases. Furthermore, since I have noted this relation between the curvature of the cornea and the refractive condition of the eye, I have looked upon it as an almost constant factor; that is, if I found high myopia with a very sharp curve of the cornea I would fully expect to find no evidence of posterior staphyloma or of sclero-choroiditis, while, on the other hand, in myopia with a very long radius of curvature I fully expected to find some changes in the posterior part of the eye. Again, while these examinations and conditions have been all carefully noted in the office work I have also found the same conditions to exist in my clinical work at the New York Post-Graduate Hospital.

The method of making these examinations is very simple and easy as the figures are taken from the arc of the ophthalmometer of Javal, by a method that I have used to record all my examinations of refraction, and that in my work I have found very instructive and useful. With a good instrument and good illumination of the mires we should have a clear picture of the reflection from the cornea. If we now take the positions where the black line is continuous we have the two principal meridians of the corneal surface. We now bring the mires together so that the one will be just tangent to the other, if we consider the edges of the mires as parts of a circle. Now, referring to the scale on the back part of the arc, together with the position of the line on the slide that holds the steps, and we have the size of the object or circle that will form an image on the cornea of 3 mm. in diameter.

This is recorded in my case-book in the following manner: R. E., $\frac{25, + \quad 90^\circ}{26, -180^\circ}$, showing one dioptre of astigmatism, axis "with the rule." Now, if we again refer to the arc of the ophthalometer, taking the two figures given above, we have 25 that represents an object or circle 22½ cm. in diameter, and we also find corresponding to this number 25 a radius of curvature of the cornea of 7.50 mm. in the horizontal meridian, and in the vertical meridian we have the number 26 corresponding to a larger object or circle and giving us a radius of curvature of 7.35 mm. You will readily note the method of making these examinations and the simple manner of recording them, at the same time I would call your attention to the vast amount of information they will convey to us at any subsequent examination, for, by this method, if we always use the same instrument, and under the same conditions, we have a permanent record of any changes in the curvature of the cornea or in the exact degree of the astigmatism. In 1897 I had the honor of reading a paper before this Section of the Academy on the "Curvature of the Cornea in Reference to the Refractive Condition of the Dioptric Apparatus in the Two Principal Meridians," in which my conclusions were based upon the measurements of more than one thousand meridians. The average of all these examinations conclusively proved to myself that the normal or mean radius of curvature was about 7.65 mm., somewhat less than those shown by Donder's tables, and also that a majority of the cases of myopia gave a shorter radius than that of the average curve. The conclusions presented in that paper have been fully confirmed by these subsequent examinations, as nearly all the cases in the tables here presented have been taken since the reading of my previous paper on this subject. Again, referring to the above paper I may also quote the following from page 8: "A careful study of this table will give us some interesting data that may be of service in the examination of our cases. One of the most important that we notice is a certain relation that seems to exist between the radius of curvature and the refractive condition of the eye, even though we may note that some of the cases in which we have a very short radius, yet we find the refraction hyperopic, as we have two cases of hypermetropic with a radius of curvature of only 6.5 mm.; also, cases in which the radius is very long and yet the refraction is myopic. We note three cases of myopia in which the radius is more than

8 mm., but I think that these cases may be considered as purely *axial*.” These remarks will also apply to the cases recorded in this paper, as we notice many cases of myopia with a long radius—that is, more than 7.65 mm.—and that are undoubtedly cases of *axial* myopia; that we also have more than one-half of these present cases showing a shorter radius, that indicate *refractive* myopia. Furthermore, that the cases which show a normal radius, also *axial*, show a number with changes at the posterior part of the eyeball, while, on the other hand, those with a short radius show very little if any change at the fundus.

No. 1. SPECIAL TABLE. Radius about Normal.

No.	Name.	Age.	Vision.	Staphyl.	Myopia.	Astig.	Radii.	Imbal.	Remarks.
1	C. W.	50	20 20	Slight	10.00		7.65		
2	R. H.	64	20 30	?	6.00				
3	W. S.	50	20 20	?	2.00			Esoph.	
4	E. S.	23	20 20	No.	8.00	50-180	7.65		
5	F. M.	26	20 .0	No.	1.50		7.65		
6	G. B.	83	20 100	Yes.	6.00				senile cataract
7	H. B.	32	20 40	No.	6.00				no change
8	I. K.	40	20/20	?	1.00			Div. Strab. R. E. Ambly.	
9	H. G.	53	20/50	No.	2.50			Esoph.	
10	C. S.	48	20/20	?	2.00		7.65		Congenital
11	A. F.	48	20 15	?	5.00	1.00-180°	7.65		R. Hyperphoria.
12	E. H.	60	20 30	No.	3.00				
13	E. U.	18	20 15	?	2.00				
14	O. P.	59	20 20	No.	1.00				
15	M. C.	30	20/20	?	3.00	1.00-180	7.65		
16	H. S.	35	20/85	?	5.50		7.65		
17	C. S.	29	20/15	?	?	1.00 180°	7.60		
18	C. C.	67	20/100	No.	2.00				
19	E. H.	13	20/15	?	1.50	.50-180°	7.65		
20	A. M.	57	20/100	Slight	7.00		7.65		Det. Ret.
21	A. M.	23	3 200	No.	8.00				L. E. Ah.
22	B. R.	25	20/20	?	5.00			C. C. S. op. & Bin. Vis.	
23	W. B.	12	20/15	Slight	2 to 3.50			inc. 2in. 2½yrs.	
24	E. M.	?	20/15	?	5.00				
25	M. C.	44	20 15	Slight	4.50		7.65		Changing glasses
26	L. R.	15	20/15	No.	3.00		7.65		
27	G. T.	58	20/15	?	2.00	1.00-180°	7.60		
28	F. S.	50	20/20	?	4.00			Esoph.	
29	H. S.	59	20/50	Small	11.00		7.65		Progressing
30	M. H.	32	20/15	?	1.50		7.65		
31	C. M.	22	20 15	No.	2.00	1.00-180°	7.65		

A general study of all these cases, taken collectively, also present some very interesting suggestions for our consideration, as we will find about one hundred and fourteen cases of myopia in the last one thousand taken from my notes, or a little more than 10 per cent. That more than one-half, or sixty-five cases, present astigmatism, either “with the rule” axis 180° or “against the rule” axis 90°. That in twelve cases exophoria is noted, showing a tendency for the eyes to deviate outward and seven in which esophoria is noted, or a tendency for the eyes to deviate inward, with one case of divergent squint and two cases of convergent squint. We also have posterior staphyloma noted in eleven cases, not present in thirty-three cases, not recorded in nine cases, and fifty-one cases in which I have placed a question mark, as they were recorded before I began to make the subject of this paper a study, and consequently I failed to record what was the condition of the posterior part of the eye at the time of making the ophthalmoscopic examination.

Passing now to the more detail part of this work, I present to you the results of these examinations in a series of tables showing the refractive condition in a more compact form, and in which we may consider the two first tables together, as they present what has been always considered the more common or usual form of myopia.

No. 2. SPECIAL TABLE. Radius Longer than 7.65 m. m.

No.	Name.	Age.	Vision.	Myopia.	Radii.	Staphyl.	Astig.	Imbal.	Remarks.
1	R. E.	16	20/15	.25	7.85	No.	.25 180°	—	Spasm.
2	J. W.	20	20/20	1.50	8.15	?	.50-180	Esoph.	will inc?
3	J. G.	58	20/30	5.00	7.90	?	1.00 180	—	
4	F. S.	25	20/50+	2.50	8.45	?	2.00-180	—	
5	A. L.	24	20/20	1.00	7.85	?		Esoph.	
6	L. L.	30	20/20	10.00	8.05	?	.75 180	"	inc?
7	J. C.	16	20/15	.75to2.50	7.80	Yes.	.50 180	—	R. E. only
8	E. R.	45	20/20	1.00	7.85	?	2.00 180	"	
9	J. A.	23	20/20+	6.to8.	7.85	?	.50-180	—	last
10	R. A.	34	20/20	2.50	8.05	?	1.50-180°	—	Bro. of.
11	J. H.	24	20/30	2.00	7.95	?	1.00-180	—	
12	W. O.	31	20/20+	3.75	7.85	?	1.00- 90°	—	inc?
13	G. A.	13	20/15	3.75	7.85	No.		—	
14	J. S.	40	20/30	7.00	8.20	Slight	2.00-180	—	
15	E. H.	32	20/20	3.50	8.25	?	3.00-180	Hyperph.	
16	A. H.	37	20/20	1.00	7.85	?	1.00 180	—	
17	M. B.	23	20/15	1.50	7.95	Com.	5.00-180°	Inc.	in 2 yrs.
18	A. M.	38	20/15	3.00	8.45	?	1.00 180		inc.
19	A. B.	25	6/200	14.00	8.45	Yes.			Mac. chor. inc.
20	B. H.	20	20/20	6.00	7.85	Slight.			
21	D. B.	30	20/20	.50	8.05	?	2.00-180	Esoph.	
22	T. M.	27	20/15	2.50	7.85	?	3.00- 90°		
23	H. S.	37	20/40	16to18	8.00	Extensive		Det. Ret. and Choroid.	

These two tables may be considered together, as the first table shows the normal curve of the cornea and the second table a lessened curve, or a radius of more than 7.65 mm. Both tables come under the head of that of *axial* myopia and comprise less than one-half of the total number of cases recorded. Here we find thirty-eight cases with normal vision = 20-20, slightly more than one-half. The myopia ranges from .25 D. to that of 18. D., with a radius of curvature from 7.65 mm. to that of 8.45 mm. That twelve cases

No. 3. SPECIAL TABLE. Radius Shorter than 7.65 m. m.

No.	Name.	Age.	Vision.	Myopia.	Radii.	Staphyl.	Astig.	Imbal.	Remarks.
1	L. R.	18	20/15	1.50	7.25	No.			Congenital
2	J. P.	42	20/20		7.35	?	50-180°		
3	H. R.	30	20/15	5.50	7.25	No.	50-180°		
4	R. R.	22	20/45	5.50	6.90	No.	3.00-180°		Congenital
5	M. B.	30	20/30+	3.00	6.95	No	2.00-180°		
6	Y. B.	12	20/30	5.00	7.35	Slight.	1.00-180°		Congenital
7	M. G.	37	20/20	6.50	7.20	No.		Orth.	
8	J. A.	18	20/15	5.00	7.50	No.			
9	L. C.	12	20/200	18.00	7.35	No.		C. C. S. 1st.	onset at 2
10	L. B.	30	2/40	2.00	7.00	?			
11	W. B.	33	20/20+	1.00	6.70	?	2.00-180°	Esoph.	
12	G. W.	43	20/30	3.00	6.00	?	2.00- 90°	Esoph.	improv.
13	H. F.	30	20/20	2.50	7.20	?		Esoph.	
14	I. R.	60	20/20	6.00	7.45	No.			
15	M. H.	38	20/30	14.00	6.90	Slight.	1.00 180°		Choroid.
16	O. C.	48	20/15	?	7.00	?	1.00-180°		
17	G. R.	40	20/15	1.00	7.35	?	50-180°		
18	A. R.	17	20/15	4.00	6.90	No.	3.00 180		
19	I. M.	30	20/20	2.50	7.00	?	50- 90°		
20	A. R	17	20/20	6.00	7.35	?	50-180°		
21	C. S.	56	20/40	10.00	7.50	?			R. E. Amh.
22	L. N.	30	20/50	?	7.50	?	1.00-180°		Iritis.
23	M. L.	?	20/15	2.00	7.50	?		Hyperphor	
24	A. B.	41	20/50	4.00	6.70	?	4.00-180°		
25	L. B.	30	20/15	9.00	7.00	?	1.00-180°		
26	I. R.	23	20/30	4.50	7.20	No.	1.00-180°		Spasm.
27	L. A.	50	20/20	1.50	7.45	?	1.00-180°		
28	L. A.	35	20/50	15.00	7.00	No.	L.E.3.00-180°	R. E. Staphyl.	
29	J. S.	?	20/15	2.00	7.35	?	50-180°		
30	J. S.	?	20/15	3.00	7.20	?	2.00-180°		
31	R. H.	15	20/15	5.00	7.00	No.	1.00-180°	Esoph.	no inc. 2 yr.
32	G. V.	25	20/15	2.00	7.25	?	50-180°	Esoph.	
33	M. C.	23	20/70+	2.50	7.20	No.		Esoph.	E. R. Ambly.
34	F. F.	30	20/15	.50to.75	7.45	?			
35	D. D	33	20/15	2.00	7.50	?	1.00-180°		
36	M. H.	29	20/20	7.00	7.25	?	1.00 180°		Father My.
37	A. H.	30	20/15	8.00	7.35	?	1.00-180°		" "
38	E. R.	45	20/20	1.00	7.50	?	2.00 180°	Esoph.	
39	I. L.	18	10/200	6.00	7.35	?		Esoph.	Brother
40	S. L.	20	20/50	10.00	7.35	?	2.50-180°		Sister
41	D. N.	55	20/50	5.00	7.00	?	1.50-180°		
42	M. R.	18	20/50	4 to 5	7.55	No.	1.00-180°		inc. ?
43	A. M.	40	20/20	2.00	7.20	No.	1.50-180°	Hyperphor	
44	M. R.	11	20/25	3.75	7.35	?			
45	M. B.	30	20/20	3.00	7.50	?	.50-180°		
46	H. R.	16	20/15	3.50	7.50	?			
47	J. P.	35	20/15	3.50	7.50	No.			
48	A. M.	38	20/20	6.00	7.25	No.	.50-180°	Esoph.	
49	F. H.	16	20/15	.50	6.95	No.	.25-180°	Esoph.	
50	J. N.	51	20/15	.75	7.50	No.	.25-180°	Esoph.	
51	A. M.	40	20/15	.12	7.35	No.			
52	A. A.	35	20/30	2.00	7.35		1.50-180°		
53	A. F.	18	20/15	1.00	7.50	?	1.00-180°		
54	G. G.	23	20/15	.25	7.35	?	.50-180°		no change 1 yr.
55	F. J.	27	20/15		7.05	No.	1.00-180°	Esoph.	" 5 "
56	M. H.	44	20/20	15.00	7.25	Small.	1.00 180°		Stationary
57	F. N.	55	20/25	6.00	7.20	No.	1.00- 90°		
58	M. S.	36	20/15	?	7.20	?			Commencing?
59	M. T.	40	20/20	10.00	7.20	No.			
60	P. B.	30	20/45	14.00	7.50	Yes both.			no change 10 yr.

show posterior staphyloma, the same number no changes and the balance not noted. That those with the normal curve have very little astigmatism, while nearly every case showing the longer radius also shows an astigmatism of .25 D. to 5. D., with the axis of the cylindric glass nearly always at 180°. That where we have any imbalance of the external ocular muscles there does not seem to be any special tendency to turn the eye in any one direction, as we have as many cases that show esophoria as we have exophoria. Finally, we also note that a large number show some changes at the posterior part of the eyeball, a decided tendency to progression, and by no means innocent, hence we may positively state that all cases with *axial* myopia, as shown by these tables, will always need careful watching by the attending surgeon.

This table presents some very interesting suggestions, as it is the basis of this paper and comprises more than one-half of my recorded cases in the last series of one thousand. The acuity of vision in more than two-thirds or forty cases is normal, 20-20, or better, as some show 20-15. That the myopia ranges from one-fourth of a dioptre to that of the very high degree of 18. D., with a radius of curvature as low as 6 mm. to that of 7.50 mm. Further, only four show any changes at the posterior part of the eyeball, more than one-third no changes and in the balance the condition was not recorded, probably absent. There were ten cases which presented esophoria and two hyperphoria, a condition that does not confirm Donder's antithesis, and finally that many of them present a history that would lead us to consider this class of myopia was congenital. Does not all this suggest to us that these are the cases of myopia that we may consider innocent and not progressive?

Conclusions: It seems to me that if we accept the relation between the curve of the cornea and the refractive condition and that the majority of our cases will show a shorter radius in both meridians than the normal curve, then we have some reason for the statement that in myopia of any degree if the radius of curvature is less than 7.65 mm. we have a case of refractive myopia and not an elongation of the eyeball. That the prognosis will be, in all reasonable possibility, that the myopia will not increase. Then with full correction our patients may continue their studies or use of the eyes with every prospect of good and useful vision. Furthermore, that with a reduced curve, showing a normal or longer radius, with any degree of myopia, then we have for consideration a case of axial myopia that may tend to increase even to serious impairment of sight. These cases must have full correction of the myopia with an examination of the refraction and glasses every six months or a year. If in time we detect any increase in the myopia then our patients must be cautioned in the use of the eyes, but a decided increase will call for the use of atropine, if necessary, and the entire cessation of the use of the eyes at any work calling for close application, until the refraction remains stationary for at least a year. Hence in this class of cases the close observation so frequently urged upon the profession by our many writers is very necessary and urgent; while in the cases of refractive myopia we may allow the use of the eyes, within reasonable limits, with confidence that we are dealing with an innocent myopia which will give useful vision during life.

Finally, allow me to state that if I have brought any suggestions to your notice which may stimulate some of you to investigate your cases of myopia along these lines, whether you confirm my propositions or not, I shall feel that I have been well repaid for the labors of this paper.

A CASE OF HYDROPHTHALMUS.

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In September, 1901, I for the first time saw a female child of four years and two months of age. The mother, a healthy looking woman with seven living children, gave me the following history: During the eighth fœtal month of the pregnancy preceding that of the patient, she had had a miscarriage from a street car accident. As a result of the accident she sustained an umbilical hernia which at first became strangulated and required the assistance of a surgeon to reduce. The strangulation recurred several times during the months of pregnancy with the patient. In fact, the child's whole period of fœtal life was marred by the impaired physical condition of its mother.

At birth the child seemed healthy with the exception of her eyes, which were unusually large—so much so that they attracted the comment of the mother's friends. The third week after birth the patient's condition began to change, she showing signs of what was termed "marasmus" by the attending physician. This continued more or less for the first two years of her life. In spite of this the patient's appetite was good and she did not present any gastric symptoms.

When the patient was six weeks of age, a series of convulsions which would last twenty minutes to one-half hour at a time, appeared. These occurred periodically twice daily exactly twelve hours apart, early in the morning and early in the evening. They continued until she was sixteen months of age. A month later she is said to have had a number of spasms of an hour and a half's duration each, these lasting for a period of sixteen hours. At this time the condition of the child became so alarming that the attending physician despaired of its life. Emaciation to such a degree that the mother almost feared to handle the child then set in. At this period the child, with its large head and eyes and puny body, attracted so much attention that the mother became so extremely sensitive about it that she did not permit any of her neighbors to see the patient. In spite of this care, however, one well-meaning agent suggested to the woman that she send her baby to a museum.

In the eighteenth month of the child's life, much to the family's surprise, the convulsions became less frequent. The patient began to gain in weight, until at the end of two years and five months of age, she was comparatively free from convulsive attacks and was able to walk. From the second until the third year her spasms occurred but twice weekly, and for the last year, she has had but two or three seizures, and these were precipitated by fright.

At the present time the patient is plump. She can talk and walk, and apparently possesses good intelligence. At times, however, she seems somewhat backward mentally and is given to uncontrollable fits of anger.

Between the ages of two and three years the patient's sight was first noticed to be affected. At that time she came to my clinic at the hospital and presented the following appearances and conditions. She was short for her age and quite stout. Her head was large and the forehead was prominent. The face was scaphoid in outline. Her breath, due to caries of the teeth, was extremely offensive. Her eyes were large and bulging. The corneæ were thirteen millimeters in diameter. There was a faint circumlinear haze, shaped like a crescent situated in the upper part of each cornea. The rest of the media were clear. The scleras were bluish-white in their anterior portions. The scleral veins were tortuous. Intraocular tension was increased. The pupils were large, and the irides were not responsive to bright light. The anterior chambers were deep. A deep cupping of the optic disc, a practically bloodless optic nerve head, a marked tortuosity of the retinal veins, and a diminution of the arterial currents, were all noticeable.

Remarks. The case is of extreme interest as giving a picture of juvenile glaucoma in which all of the superficial and deeply seated signs could be recognized simultaneously; a condition that is of extreme rarity and one that is well worthy of placing upon record.

As to the etiology of the condition, it is most probable, in spite of an unattainable history, that the case was one of antenatal syphilis in which the brunt of an uveal inflammation was situated in the region of the ciliary glands, giving rise to sufficient disturbance to cause a hypersecretion of the intraocular fluids with an undue distention of the ocular globes.

A NEW SELF ILLUMINATING OPHTHALMOSCOPE.

BY G. F. SUKER, M. D.,
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Illustrated.

There can be no doubt but that the Wolff electric ophthalmoscope, which furnishes its own light for illumination, is an instrument of great value and fills a long felt want in the armamentarium of the ophthalmologist. An improved ophthalmoscope of this nature is now made by Chambers-Inskeep Company, of Chicago. It consists of an ordinary seventeen lens Loring ophthalmoscope with a quadrant and a four-volt battery for the electric light. The cut here given fully explains the mechanism.

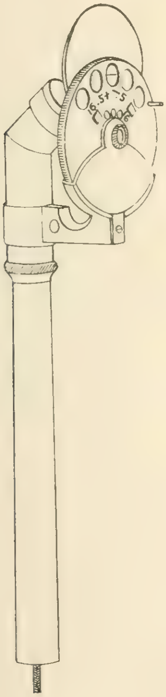
The advantages of such an ophthalmoscope are many, and a few of them are as follows:

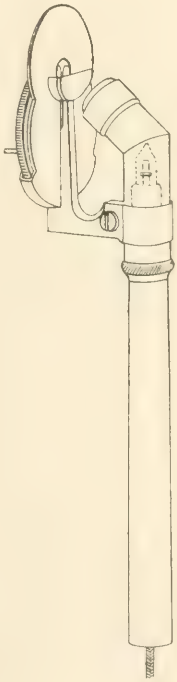
One can without the use of a mydriatic, examine the fundus in detail with great ease. It matters little how small the pupillary diameter is, the fundus is readily obtained.

It is exceedingly convenient in examining the eyes of children and unruly patients, as the light is always on the eye, thus easily following the movements of the head and eye. Then, too, being portable, it is very serviceable in making bedside examinations.

The source of light (a 2-candle-power electric lamp, from a 4-volt battery) being very close to the eye under examination, there is but little waste of the intensity of light. This is a valuable feature. The heat generated by the lamp is not sufficient to interfere in any way whatsoever.

The fact that the light can be brought so close to the eye under examination accounts for the excellent fundus illumination, there being but little expenditure of intensity of light after the reflection. The light is reflected from a plane mirror; the latter is placed within the focus of the condensing lens, which is 80 dioptres in strength. The rays, therefore, are reflected parallel and the focus of light is obtained after the reflection. For this reason, the focus is brought very nearly into the anterior chamber if the cornea is not too sharply curved. Otherwise, it is brought almost directly onto the cornea. Right at this point is the only objection to the instrument. For the reasons just cited you get a slight corneal reflex of the semi-circular mirror. However, one soon loses sight of this reflex after a little and it in no way interferes with the accuracy of the instrument whatsoever.





As the focus is practically within the eye when the ophthalmoscope is brought right up to the eye, the rays of light diverging from it have but a short distance to travel before reaching the fundus, therefore the latter is brilliantly illuminated, because the light has lost but a trifle of its original intensity. In other words, the fundus is very near the focus or source of light.

Because of the above conditions a large field of illuminated fundus and a power of light penetration is obtained which scarcely can be had by any other method of ophthalmoscopy. Therefore, an exact interpretation of the fundus conditions can be elicited.

The intensity of the illumination can be nicely controlled by the requisite switch on the battery. Therefore, such opacities in the ocular media as are made nearly transparent or translucent by the intense light can be easily located with the weaker light. The same relative clear definition with the weak light is obtained as with the stronger because the focus has not changed its position nor has the position of the instrument. One can not obtain these conditions as nicely or as accurately with the other variety of ophthalmoscopes.

There is very little about the instrument which can get out of order. The miniature electric lamp and the battery can be replaced at a minimum expense. If the battery could be made smaller, as well as lighter, the whole would be more convenient to carry; however, this is a minor detail.

No doubt the ophthalmoscope will appeal to many on account of the points of merit above described.

Dr. Albert Terson (*Ophthalmol. Klinik;* 1901, No. 17) draws our attention to the local analgesic value of dionin in hemorrhagic glaucoma. Glaucoma is a well-known complication of the classical retinitis albuminuria, and treatment by iridectomy is in such cases contra-indicated.

The author's patient was suffering from pain due to glaucoma, complicating the retinitis of Bright's disease. The pains were so intense and resisted all measures so obstinately, that enucleation of the eyeball was considered. As a final resource, dionin was tried, a solution of 1.40 being dropped into the eye twice daily. The effect was most striking and prompt, and the patient thus narrowly escaped the operation. This analgesic action of dionin was also observed in other affections of the eye, and is confirmed by various authorities. —*Merck's Report,* May, 1902.

THE
OPHTHALMIC RECORD
A MONTHLY REVIEW OF THE PROGRESS
OF OPHTHALMOLOGY.

VOLUME XI, No. 8. CHICAGO, AUGUST, 1902. NEW SERIES.

EDITORIAL.

THE EXAMINATION OF THE EYES AND EARS OF CHILDREN IN THE PUBLIC SCHOOLS.

The Illinois State Board of Health has made a long step in the right direction by adopting resolutions recommending to all schools within the state that the eyes and ears of all pupils be examined by the teachers every October. Of course, it is understood that such examinations are of the usual elementary character consisting in the study of test cards, and the searching for asthenopic symptoms, inflamed eyes, strabismus, deafness, discharging ears, mouth breathing, etc.

It is wise that such examinations should be made in October. In other words, they are made after the opening of the schools have thoroughly become established, and teachers and scholars are preparing for the work of the coming year. At this time the children can be examined to the best advantage, and the cards of warning issued by the schools notifying the parents of some eye or ear defect will probably receive the maximum attention. Besides this, teachers will have an opportunity of urging upon parents and pupils the necessity of heeding the cards of warning, and of thoroughly observing the effects of proper medical attention. The Illinois State Board of Health cannot, of course, insist upon these tests being made in the various schools; they can only issue circulars of an advisory character. This they will do, and as those engaged in educational work are becoming fully alive to the importance of this subject, it is believed that most schools throughout the state will heartily accept the advice of the board and commence these tests, if they have not already done so.

The Illinois State Board of Health is to be congratulated upon its espousal of this important undertaking, and it is to be hoped that other boards throughout the United States will go on with the work.

A propos of this subject, attention is called to an editorial in the Journal of the American Medical Association for August 2, 1902, entitled: "Contagious Eye Diseases in This Country," in which comment is made on the excellent work recently accomplished by Dr. Richard Derby in the schools of New York City. "He examined the eyes of all pupils in two crowded public schools in the lower east side of the river. Fully two thousand pupils were subjected to the examination, and about 20 per cent of them proved to be suffering from contagious eye diseases. Of these more than one-fourth of the cases were found to be so serious that cure of the condition could only be reasonably hoped for after operation. These cases have continually carried with them for a long time a very serious risk of infecting others. If their attendance at school is not prevented this risk will continue practically indefinitely; for they do not belong to the class of people that are likely to be awakened to a sense of their duty in the matter without authoritative interference."

These words of Dr. Derby will, it is believed, do much to awaken public authorities to the importance of this and allied subjects. But the force of the "push" must come from the medical profession.

ALLPORT.

A Method for Performing Iridectomy in Aphakial Eyes with Complete Obliteration of the Anterior Chamber.—Deschapms (*Ann. d' Oculistique*, February, 1902) describes a method for performing iridectomy which he has devised to meet the conditions obtaining in aphakial eyes with obliteration of the anterior chamber. In such cases, where the iris lies directly against Descemet's membrane, the operation, according to the ordinary method, or even the modification of Gayet, is extremely difficult or impossible. Deschamps' operation is thus described: A cataract knife is introduced at the limbus corneæ, passed into the vitreous *behind* the prolapsed iris and made to emerge at a symmetrical point 4-5 mm. away. The intervening tissues are then cut through. Iridectomy forceps are introduced, the iris seized from behind and separated from the cornea. This procedure is facilitated by gently rubbing the posterior surface of the agglutinated iris. Finally the iris is drawn out through the incision and clipped off.

This method was eminently successful in the two cases reported.

REPORTS OF SOCIETIES.

WILLS' HOSPITAL OPHTHALMIC SOCIETY.

A meeting of the Wills' Hospital Ophthalmic Society was held at the Hospital February 18th, 1902; Dr. S. Lewis Ziegler in the chair.

Dr. Conrad Berens presented a *case for differential diagnosis between glaucoma as expressed by the ophthalmoscopic changes and optic atrophy as evidenced by the other data.* Dr. P. N. K. Schwenk leaned toward the atrophic theory. Dr. Berens stated that the case at first appeared like one upon which an immediate iridectomy for glaucoma should be performed; the symptoms, however, subsequently yielded to treatment directed toward incipient optic nerve atrophy. He had found that the papillary vessels were not plunging, and the choroidal and peripheral retinal ones could not be determined. He had postponed operation for the following reasons: The anterior chamber was full; the corneal epithelium was in good condition; and the irides were freely responsive. He nevertheless feared a glaucomatous attack. For a period of three months' time the patient had been on frequently repeated and large doses of sulphate of strychnia several times daily without any physiological symptoms and with improvement in one eye. Dr. Walter L. Pyle presented transcripts of the fields of vision of the case, and called attention to the fact that those for color were not disproportionately contracted. The red and the green fields of the right eye were slightly contracted, especially the former. They were properly related. There were central color scotomata. The color fields of the left eye were concentrically contracted, particularly to the temporal side, but there were not any scotomata. He stated that there had been slight increases in tension, and that there were not any symptoms of glaucoma in the anterior segment of the eye. He had found that the optic nerve cupping was not deep—merely a shelving, as it were—over which the small retinal vessels could be followed. He believed that the peculiar feature of the case was the fact that the color-fields were not disproportionately contracted such as one would expect to find.

Dr. S. D. Risley thought the mixed atrophic appearances were dependent upon a physiological excavation and an unusually rigid sclera. He suggested the presence of a retrobulbar neuritis as evidenced by the contracted visual fields and the central scotomata. He would avoid operative interference.

Dr. William Zentmayer stated that in studying over one hundred cases of glaucoma occurring in the clinics of Drs. Norris and Oliver at the hospital, he had found that the supposed characteristic cutting off of the nasal portion of the visual fields did not exist in the majority of cases. He had found that there generally is a concentric contraction of the fields and occasionally central scotomata.

Dr. Ziegler mentioned a case with deep physiological cupping and possible slight increase of tension that occurred ten years previously. The irides were responsive. There was not any dilatation of the pupils. The retinal vessels dipped considerably into a cupping in the optic nerve head which was some five dioptres deep. One eye was operated on early, retarding the condition. The other was operated on later. The man returned with an attack of acute violent glaucoma.

Dr. Frank Fisher had seen Dr. Berens' case the first day that it was brought to the hospital and believed that it was one of optic neuritis with atrophic symptoms. He still held to the same diagnosis, and could not admit glaucoma.

Dr. Charles A. Oliver stated that glaucoma complex occurred in many forms. This case was most probably one, he believed, of secondary type that made a picture of what may be spoken of as posterior glaucoma. The condition would eventually lead to blindness. Iridectomy in such cases is of no value. In most of these cases there are temporary blockings of the lymph streams posteriorly, accompanied with ephemeral though definite rises in intraocular tension. The condition, he said, is sometimes benefited by treatment directed toward various causative dyscrasia such as rheumatism and syphilis. The appearance is totally unlike the grosser forms of anterior glaucoma. The inflammatory signs ofttimes consist in associated low grade retrobulbar neuritis giving rise to the socalled mixed type of the disturbance.

Dr. Berens presented a case of *abscess of both frontal sinuses* into which T-shaped drainage tubes were to be inserted. The patient's condition at the time of the meeting, however, was so bad and so much hemorrhage had taken place, that he had decided to drain but one side, leaving the other for a subsequent time when the patient's condition had improved. He stated that in this case a probe could be passed from one sinus to the other. He mentioned another case in which he had successfully used a system of T-shaped drainage tubes to advantage. During the operative procedures the case almost died on the table. He persisted, however, with a good result. A few days before the meeting he again had an opportunity of seeing the patient and found that the nasal passages were in excellent condition. A special point in the operation, he believed, was the frequency of extreme hemorrhages, which we should always be carefully prepared for. The method of drilling through the bone was detailed. Personally, he preferably employed a double-edged cutting drill. He called special attention to the method of passing the tube through the drilled opening, and thence into the cavities. For this purpose he used a rubber drainage tube with two strains of No. 12 waxed cord passed through it and threaded on an eye probe. He had found it necessary to use main force for the purpose. He mentioned the great value of peroxide of hydrogen in these cases during the operation, stating that it does two things, namely: stops local hemorrhage, and when injected through the nostrils into the stomach, it causes any blood in the stomach which may have been swallowed during the operation, to clot and be vomited. Dr. Oliver mentioned the great value of the cleansing and hemastatic properties of peroxide of hydrogen. He had successfully employed it in a case of sarcoma of the orbit that had been recently operated on by him. He had used it in full strength solution and had not found it to do any harm.

Dr. Oliver then showed a case that had been successfully operated on by him and Dr. George B. Wood, for disease of the orbit, sphenoid sinuses and antrum.

Dr. Berens spoke of a case occurring in the late Dr. Keyser's clinic at the hospital in which the patient was saved only by untiring efforts for nearly four hours' time before the case responded. Dr. Fisher spoke of his method of dealing with such bone cases. Dr. Ziegler suggested the use of a hand drill with a ratchet and pinion. Dr. Berens stated that he had tried a great many forms of instruments, but had finally concluded that the double edge drill in a bulb handle is the best by reason that the slightest motion is communicated to the hand and thus allows the operator to always know where he is at.

Dr. Schwenk presented a case of *thrombosis of the central retinal vein.* He based this belief upon the sudden onset of impaired vision, the repeated patches of retinal hemorrhages that could only be found in the course of the retinal veins, the optic nerve head swelling, and the hemorrhages in the macular region. There was a systolic murmur.

OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM.

Thursday, June 12, 1902.

David Little, M. D., F. R. C. S. E., president, in the chair.

Secondary Carcinoma of the Eye. Dr. Rockliffe (Hull) read notes on the termination of his case exhibited to the Society in July, 1901. The left eye was excised on July 12 and showed the following condition: The front part of the eye is normal but the anterior chamber is rather shallow. The vitreous has entirely disappeared.

Situated at the posterior part and extending from the optic nerve to the ciliary processes is a large, flat unpigmented tumour, being at its thickest part near the optic nerve from two to three mm. thick, and tapering as it goes forward. It is growing between the layers of the choroid. The retina is completely detached. Microscopically the growth is seen to consist of numerous small, round cells grouped together with connective tissue. Hardly any pigment is visible except in the choroid. The vessels are free and entirely confined to the connective tissue network. The optic nerve has also several tumour cells scattered among the fibres. The sclerotic at the posterior part is sparsely infiltrated with the same. There are several areas of degeneration in the growth.

On July 30 Rv.=$\frac{6}{1}$, detachment increased with shooting pain around the eyeball.

On August 16 she had an attack of pleurisy, and later stiffness and swelling in the left leg. The whole retina was swollen and the detachment increased. She died on Nov. 30 having suffered much from vomiting and paroxysms of coughing with the vision gradually getting worse. She had little or no pain in her eye or head. She had continual constipation and was in a comatose condition for the last two days of life.

To sum up, it would appear that secondary carcinoma of the eye more usually follows injury to the breast affecting females rather than males between the ages of 40 and 60, and that the tumour is flat and consequently the tension is not increased and that the duration of life, although varying, after the first symptom of the eye becoming affected usually does not exceed two years.

Dr. Rockliffe also read notes of a case of *supposed death from atropine poisoning.* The patient was a very delicate looking child, age 10 months, who had suffered from convulsions most of this time. He first of all put into the eyes three drops of a 1 per cent solution of atropine, which did not dilate the pupils fully. More atropine was applied, but during the 30 hours which elapsed from the first using of the atropine only 7 drops were instilled. The temperature rose to 105.6°. The pulse was uncountable and the respiration 72. The skin was red and the lips had a quantity of mucus about them. In this state th child died.

Dr. Rockliffe also read notes of a case of *Leprous Ulcer of the Cornea* in a young man a native of the West Indies, exhibiting prints of skiagraphs taken by Mr. E. H. Howlett, senior surgeon to the Hull Royal Infirmary, showing the various bone changes taking place in this disease. He also referred to the obstinacy of the ulcer of cornea to treatment in spite of frequent galvano-cauterization, etc.

Dr. Bronner (Bradford) reads notes on two families with *bilateral congenital microphthalmos and cataract.*

In one case the father and four out of eight children were affected, the third, fifth, sixth and eighth. The eyes of the mother were normal. There was no consanguinity, or history of syphilis.

In the other case the mother and all four children were similarly affected. The parentage of the children was somewhat uncertain. The mother of the woman is said to have had similar eyes.

Dr. Argyl-Robertson had once operated on a boy with this condition, the father having previously undergone a successful operation for cataract in a similar sort of eye. In both fair vision resulted.

Mr. Mules thought that there was in these cases often a history of congenital syphilis.

Mr. Priestly Smith said that there was no hard and fast lines to be drawn between a small eye and a microphthalmic one. If the diminished size was very marked probably cataract was present and the lens was proportionately small. But in less marked cases the clear lens would be the normal size and then glaucoma would be almost certain to follow. On the whole he thought that the former class of eyes were less likely to become blind than the latter.

Mr. Frost asked if an eye with a congenital coloboma would be less liable to glaucoma than others.

Prof. Fuchs had seen but one case and in this a man who had lost one eye from acute blennorrhoea had a child who suffered from microphthalmus on the same side.

Colloid Degeneration of the Conjunctiva. Major Herbert, I. M. S., described a case of what has been wrongfully named "amyloid" or "hyaline" degeneration. Similar changes have been found rarely in the skin of old people, and have been correctly described by dermatologists as "colloid" degeneration. The ocular conjunctivæ only were effected, the palpebral portions being occupied by scar tissue from old trachoma; a swollen, translucent fold overhung the upper third of each cornea.

The change consisted mainly in a swelling and breaking up and rearrangement of white connective tissue fibres (collagen) and also of elastic fibers. In the deeper tissue the new material became molded into rounded and elliptical blocks, probably by constant stretching and movement of the fold. In the center of many of these folds plasma cells were enclosed; more rarely small masses of colloid or masses of blood pigment. Other blocks with central cavities represented the remains of blood vessels. On the other hand other blood vessels had undergone rarefaction of their walls instead of colloid thickening and occlusion. Many of the blocks had connective tissue cells closely applied to them. Special staining with acid fuchsin and acid orcein showed imbedded in many of the blocks the remains of white connective tissue fibers and in others elastic fibers. But the change was so advanced in the tissue examined that it was only close beneath the epithelium, in a layer of adenoid tissue, that the transition from collagen to colloid could be followed. In this layer a few true hyaline balls were to be found; and both here and in the deeper tissue many golden pigment granules, the remains of hæmorrhages, were seen. Here and there some of the deeper colloid had coalesced into large and rather firm opaque, waxy masses, two or three mm. or more in diameter. In the central portions of these masses there were no blood vessels and only the remains of cells, consisting of groups of small particles and larger spheres with some affinity for hæmatoxylin. There were still a few bands of white connective tissue remaining, but they were degenerating on lines rather apart from the primary colloid change; also some free elastic fibers, mostly clumped near blood vessels. Some of the latter showed basophile degeneration—elacin. The only approach to amyloid reaction found was a faint indigo blue with iodine and sulphuric acid in a few of the blocks; all alike, stained pale brown with iodine alone, and none of them gave any trace of pink with methyl and gentian violet.

The following card specimens were shown:

Major M. T. Yarr: *Indirect contusion injuries of left eye resulting in blindness following Mauser bullet around both superior maxillary regions.*

Mr. J. H. Parsons: *Sections from a case of microphthalmus.*

Dr. Leslie Buchanan: *Traumatic separation of the ciliary body from the Sclera.*

Mr. Stephen Mayor: (a)—*Rodent ulcer of face treated by X-rays.*

(b)—*Case of trachoma treated by X-ray.*

Mr. Amos D. Lanson: *Partial embolism of the central artery of the retina in a lad aged* 18 *years.*

Mr. W. T. Holmes Spicer: (a)—*Thrombosis of Retinal Veins; cystic degeneration of retina at yellow spot.*

(b)—*Vessels of new formation in anterior surface of iris.*

C. Devereux Marshall.

The Annual Meeting of the American Ophthalmological Society was held at the Pequot House, New London, Conn., July 16 and 17. The following is a list of some of the papers presented:

1. A New Speculum. Dr. F. D. Skeel.

2. The post-operative history of fifty cases of Simple Chronic Glaucoma. Dr. C. S. Bull.

3. Notes on some cases of Simple Chronic Glaucoma treated by resection of the superior ganglion of the cervical sympathetic, with sections of ganglia. Dr. J. E. Weeks.

4. A case of Epithelioma of the Orbit. Dr. C. A. Veasey.

5. Melano Sarcoma of the Orbit, with microscopic and macroscopic specimens. Dr. S. B. St. John (pathological report by Dr. A. J. Wolff).

6. Report of case of Congenital Orbital Cyst, with microphthalmus. Dr. G. C. Harlan.

7. Ossification of Chorioid, with report of four cases and rèsumè of literature to date. Dr. B. L. Millikin (with assistance of Dr. J. C. Darby).

8. A case of Metastatic Carcinoma of the optic nerve, with peculiar degeneration of both nerves—clinical and pathological report. Dr. Ward A. Holden.

9. A case of Double Metastatic Carcinoma. Dr. E. E. Jack (pathological report by Dr. Verhoeff).

10. A case of Cavernous Sinus Thrombosis. Dr. E. E. Jack (pathological report by Dr. Verhoeff).

11. The Conjunctival Flap and the Cataract Wound. Dr. F. M. Wilson.

12. Case of Delirium Tremens following Cataract Extraction. Dr. T. R. Pooley.

13. Death from Diabetes after Cataract Extraction. Dr. T. R. Pooley.

14. Some recent experiences with Sub-conjunctival Injections in Orbital Disease. Dr. C. S. Bull.

15. Report of examination of Eyes of Children in Public Schools of Memphis. Dr. J. L. Minor.

16. A simple use of the circle of diffusion in the correction of Ametropia. Drs. William Thomson and A. G. Thomson.

17. The use of Models in teaching of Ophthalmology, especially as to refraction and convergence. Dr. B. A. Randall.

18. On the insertions of the Ocular Muscles. Dr. L. Howe.

19. The ideal result to be kept in view in the operative treatment of Convergent Strabismus in Children. Dr. S. Theobald.

20. A note on the Ophthalmoscopic Variations in the Normal Fovea. Dr. H. T. Hansell.

21. On the confusion in methods of using prisms. Dr. L. Howe.

22. Additional notes of a case of High Astigmatism. Dr. B. L. Millikin.

23. A case of unilateral temporal Hemianopsia in which the Wernicke Hemianopsia pupillary reaction was present. Dr. C. J. Kipp.

24. Two cases of detachment of the retina traumatic in origin, treated by drainage-incision. Dr. W. K. Rogers.

25. A methyl-alcohol debauch and its results. Dr. H. W. Ring.

26. Several cases of Unusual Eye Diseases. Dr. J. H. Claiborne.

27. A case of vicarious menstruation from the lower lids. Dr. J. H. Claiborne.

28. Histologic study of the lenses of a hanged criminal. Dr. C. A. Oliver.

29. Study of the ocular changes produced by the injection of pure cultures of the Bacillus Typhosus into the Vitreous chamber of rabbits and guinea pigs. Dr. C. A. Oliver.

30. The extraction of Steel from the Vitreous Chamber. Dr. S. D. Risley.

31. The value of partial resection of the tarsal cartilage in the operative treatment of congenital Ptosis. Dr. E. Gruening.

32. Circumscribed Exudative Chorioiditis. Dr. H. Friedenwald.

33. On improvement of vision in Amblyopia. Dr. H. Friedenwald.

The following recommendations of the Section on Ophthalmology of the American Medical Association, which had been adopted after several years' consideration of the subject, were submitted to the House of Delegates and to the association for its final official endorsement by H. V. Würdemann, Delegate from the Section on Ophthalmology to the House. They were indorsed and a resolution passed to be printed and officially sent by the officers of the American Medical Association to the officers and railroad corporations and other interested parties.

Recommendations of the American Medical Association Regarding Tests of Sight and Hearing for Railroad Employes.—Section 1. It is essential that railroad corporations should require definite and scientific examinations of the sight and hearing of those employes who will be at all concerned with the active operating of trains, or in giving and receiving signals.

Section 2. Such examination should, *whenever possible,* be made by regularly appointed eye and ear surgeons; and in all cases be conducted according to the instructions, and under the supervision of a regularly appointed eye and ear surgeon, and with apparatus and under conditions approved by him, and all doubtful cases should be referred to him for personal examination.

Section 3. New men should be required to hear the spoken voice at 20 feet in a quiet room, and have healthy ears.

Section 4. The acuteness of vision should be tested by the test types of Prof. Snellen, or those which conform to his standards.

Section 5. The following minimum requirements should be adopted for acuteness of vision:

CLASS A.

	Entrance to service or promotion.	Re-examination of those in the service.
Enginemen (road service). Firemen (road service).	20/20 in each eye tested separately without glasses.	20/30 with both eyes open without glasses. Each eye should also be tested separately and the vision of each noted.

CLASS B.

Other employees in the engine, train or yard service, and car and engine inspectors.	20/20 in one eye and not less than 20/40 in the other. Tested separately without glasses.	20/40 with both eyes open, without glasses. Each eye should also be tested separately and the vision of each noted.

CLASS C.

Towermen, telegraph operators, station agents, section foremen.	20/20 in one eye and not less than 20/40 in the other. Tested separately with or without glasses.	20/40 with both eyes open with or without glasses. Each eye should also be tested separately and the vision of each noted.

CLASS D.

Crossing flagmen.	20/40 with both eyes open, with or without glasses.	20/50 with both eyes open, with or without glasses.

Section 6. The color-perception should be tested by means of the colored worsteds of Professor Holmgren, preferably with worsteds tagged for the purpose of record; also, in every case an additional test should be made with a lantern showing a number of colored lights, which can be varied in their size and intensity.

Section 7. (a) Employees enumerated in Class A, must reach the visual standard without glasses, and should not be allowed to wear distance glasses when on duty.

Section 7. (b) Employees enumerated in Classes B, C, D, should be allowed to wear glasses when on duty, and should be required to do so if the wearing of glasses is necessary to bring vision up to the proper standard. They should always be required to carry an extra pair of glasses when on duty, in case of accident to one pair.

Section 7. (c) Employees enumerated in Class A should not be retained in such positions if vision sinks below 20/30 with both eyes open, or if the spoken voice cannot be heard in a quiet room at 15 feet.

Section 7. (d) Employees enumerated in Classes B and C should not be retained in such positions if vision sinks below 20/40 with both eyes open, and Class D whose minimum standard should be 20/50; or if the spoken voice cannot be heard in a quiet room at 10 feet.

Section 8. There should be two general standards of visual and aural requirements, viz., one for new men hoping to enter the service, and to be actively engaged in the operation of trains, and in giving and receiving signals; and one for those men engaged in similar work, who have been uninterruptedly in a company's service for five years, either the company from which employment is sought, or some other company enforcing similar regulations. These latter may be regarded as old employees.

Section 9. Re-examination should be made of all such employees every three years; and after any severe illness, or accident, or any occurrence which seems to cast doubt on the visual and aural capacity of the individual. Re-examinations should also be made more frequently on men known to be excessive users of tobacco, or to be suffering from syphilis, albuminuria, diabetes, or acute or chronic eye or ear diseases. They should always be examined before promotion.

Section 10. Men known to be excessive users of liquor should not receive employment for the services above designated (Section 5). The co-operation of the employees themselves should be sought by regulations that will encourage them to report promptly any temporary impairment of vision or hearing.

Respectfully submitted on behalf of the Section on Ophthalmology of the American Medical Association.

H. V. Wurdemann,
Edward Jackson, } Committee.
Leartus Connor.

(Annals Ophth.)

The following has been recommended by Merck's Archives as of service in the treatment of granular conjunctivitis:

℞	Cupri sulphatis	gr. i	.06
	Acidi salicylici	gr. ii	.12
	Cocainae hydrochlor	gr. ii	.12
	Petrolati albi	ʒ iiss	.10

M. Ft. unguentum. Sig.: Apply at night and wash the eyes well in the morning with a boric solution.

CORRESPONDENCE.

EDITORS OPHTHALMIC RECORD:

DEAR SIRS:—Permit me to ask you to correct an error which your reporter made in reporting on the paper which I read before the last meeting of the A. M. Association. On page 386 of the July number of THE RECORD you will read: "After the patient has been taking it for five or six days, it is best to intermit a week or ten days." It should have read: "After the patient has been taking it for five or six weeks," etc.

By kindly making this correction you will greatly oblige me.

Very truly, GEO. F. SUKER.

Follicular Conjunctivitis.—Follicular conjunctivitis, according to Drs. Wood and Woodruff, in *Medical Standard,* is a catarrhal conjunctivitis to which has been added an overdevelopment or hypertrophy of the lymph follicles. They recommend as treatment the local application of cold compresses, followed by a mild antiseptic lotion similar to the following:

℞	Acidi hydrocyanici dil	gtt. i	.06
	Acidi boracici	ʒss	2.00
	Sodii boratis	gr. xl	2.66
	Aq. destil.	℥ ii	60.00

M. Sig.: One or two drops to be instilled into the eye once or twice daily.

In cases of trachoma or chronic granular conjunctivitis, the conjunctival sac should be thoroughly cleansed with boracic acid or weak bichlorid solution and later some astringent preparation applied, such as the following:

℞	Cupri. sulph. vel. acidi tannici........	gr. x	.66
	Vaselini	℥ i	30.00

M. Ft. ung. Sig.: Apply between the lids once or twice daily. In the early stages, when the granulations are excessive and prominent, massage of the lids with the following is recommended by them:

℞	Hydrarg. oxid. flav..................	gr. v	.30
	Lanolini	℥ ss	30.00
	Vaselini	℥ ss	30.00

M. Sig.: To be applied to the lids and thoroughly rubbed in.

NEWS ITEMS.

PERSONALS AND ITEMS OF INTEREST SHOULD BE SENT TO BROWN PUSEY, 31 WASHINGTON ST., CHICAGO.

Dr. W. E. Lambert, New York, is traveling in Europe.

Dr. George Huston Bell, of New York, is spending a month in Virginia.

It is understood that an ophthalmological society is being organized in St. Louis.

Dr. Edgar Thompson has been elected a surgeon to the Manhattan Eye & Ear Hospital.

Dr. E. L. Oatman has been appointed a surgeon to the eye department of the Manhattan Eye & Ear Hospital.

Dr. Peter A. Callan, New York, and Dr. Louis A. Prefontaine, Springfield, Mass., are in Europe for their summer vacations.

Dr. J. L. Borsch, of Philadelphia and Mlle. Marie Blanch de Fermon were married on July 5th. Mrs. Borsch is a daughter of Viscount Jules de Fermon of Paris.

Dr. Mitsiyasee Inouye, of Okayama, Japan, has become a member of the editorial staff of the Annals of Ophthalmology. He will furnish abstracts of Japanese ophthalmological literature to that journal.

Dr. Harold N. Moyer has been elected to the chair of neurology in the Chicago Eye, Ear, Nose & Throat College. His work in the school will be on the lines of the "Clinical Aspect of Neurology in Ophthalmology."

Richard Förster died in Breslau on the 7th of July. He was one of the oldest of the German ophthalmologists. Förster was born in 1825 in Schlesien. He entered the University of Breslau in 1845, where he had Purkinge as a teacher; from Breslau he went to Heidelberg, where he was a student of Hule. He got his medical degree at the University of Berlin. In 1857 he became privatdocat in the University of Breslau and professor of ophthalmology in that University in 1873; he retired from this professorship in 1896.

According to the New York Times, Health Commissioner E. J. Lederle, of New York City, at a meeting of the Board of Education of that city, said, that of 55,500 children examined 6,670, or 12 per cent, were found to have eye disease. The percentage differed in different schools, varying from 22.2 per cent in a school at 310 East 20th street, to 3.2 per cent at 170 East 77th street. Of the sufferers 5,568 had trachoma; of these 2,328 had trachoma of severe type. There were 1,099 cases of acute purulent conjunctivitis. Hereafter it is proposed to have the children's eyes examined by experts and contagious cases will be excluded from school.

The Visual Field of Glaucoma.—Variations of the visual field in glaucoma as studied by Bunge, Bjerrum and others are reviewed by Friedenwald, who concludes that Bjerrum's view that the defect is due to interruption of the course of the nerve fibres as they pass through the excavated portion of the papilla is best corroborated. He finds no correspondence whatever between the defect and the course of the arteries, and he is convinced that however important the sclerotic changes in the vessels may be in the pathology of glaucoma, the are not the cause of the interesting forms of field defects as first described by Bjerrum.

In Ulcers of the Cornea.—Dr. Galezowski (*Rev. de Therap.* LXVIII., No. 19) recommends:

℞	Iodoform	1½ gr.
	Cocaine hydrochlor.	½ gr.
	Petrolatum	2½ dr.

After the ulcer begins to heal and cicatrize, he orders the following ointment:

℞	Calomel	2½ gr.
	Dionin	1 gr.
	Wool-fat	2¼ dr.

Visual Tests for Children.—A. E. Ewing (*The American Journal of Ophthalmology*, February, 1902.)—Although estimation of the refraction in children and illiterates may be approximately realized by objective methods, the acceptability of any given glass for distance can only properly be determined by direct visual test. In 1885 Ewing designed a series of familiar objects, such as a horse-shoe, a circle, a rocking chair, a chair, a cross, a square, etc., and has recently supplemented the list by the addition of a teapot, a mug and a heart. The objects are drawn to Snellen's scale of 1′ visual angle for the thickness of the line, and 5′ for the size of the object, the gradation in size conforming to a series in geometrical progression in the ratio 1:0.7 as compared with the next larger size, or of 1:1.4 as compared with the next smaller size.

International Congress for Improving the Condition of the Blind.—An International Congress for Improving the Condition of the Blind was opened at Brussels on August 6th under the presidency of the Belgian minister of justice, M. van den Heuvel. The congress was under the patronage of the King of the Belgians and H.R.H. Duke Charles of Bavaria, whose skill as an ophthalmologist is well known, and was attended by representatives of many countries in Europe and elsewhere. Many professors and physicians from the leading institutions in various parts of the continent were present. Among the subjects discussed were the best means of enabling those afflicted with blindness to gain a livelihood and the methods of recreation adopted in different institutes. An inquiry was also made into the causes of blindness in populous centers and the best means of preventing it.—*British Med. Jour.*

Spectacle Fitting Not Practice of Medicine.—The Appellate Court of the Second District of Illinois, in the case of Smith vs. People, has decided that an itinerant oculist and spectacle-fitter is not engaged in the practice of medicine. The appellant advertised as the "Great Chicago Eye Expert," and his advertisements also contained the following: "If you have blurring, dizziness, neuralgia, headaches, spots before the eyes, inflammation, granulation, winking, trembling spells, cataract, burning and smarting of the eyes, various brain affections entailing not only positive injury to the sight, but untold misery, call immediately." The court reasons that this is not the practice of medicine; "the defendant did not cure any of these ailments, that whenever his patrons ceased using the glasses defendant had supplied to them, their prior troubles returned." The case has been carried to the Supreme Court.

Optic Neuritis from Absorption of Thyroidin.—Coppez has observed five cases in four women and one man in which amblyopia developed during the course of treatment of obesity by thyroidin tablets and which were relieved by suspension of the remedy. A dog subjected to the same treatment for obesity became almost blind.

According to the symptoms and particularly the central scotoma, the author is of the opinion that partial retrobulbar cystic neuritis is occasioned. The patients were about forty years of age and had been taking thyroidin for a long time. The dose had been raised to thrice the usual amount. There had been considerable loss of flesh. The amblyopia began several months after the treatment had been instituted. The affection made rapid progress. In six weeks the acuity fell to a tenth. Both eyes were attacked. Prognosis is favorable. The disease is arrested by discontinuing the thyroidin.—*Le Progres Medical.*

Sympathetic Ophthalmia.—From the review of a number of cases, De Schweinitz and Shumway conclude that the best that can be said at the present time is that an eye, so wounded that a plastic iridocyclitis or uveitis appears, sometimes set up in the opposite eye an analogous inflammation, to which we give the name sympathetic ophthalmitis, and that in all probability this depends upon an infection of the so-called sympathizing eye by some form of toxin which they liberate, but that sometimes exactly analogous lesions will produce only an irritation which promptly disappears on removal of the originally injured eye and disappears, moreover, without leaving a trace of organic change. It would further seeem that some undiscovered, perhaps constitutional, perhaps local, condition determines on the one hand the inflammation and one the other hand the temporary so-called irritation.

Amaurosis.—Derby relates a number of cases of optic nerve atrophy treated with strychnia injections in gradually increasing doses, and in about 30 per cent with fairly encouraging results. He thinks the following conclusions are justified: 1. Strychnia is a stimulant to the optic nerve. Even in normal eyes it slightly increases the acuteness of vision and widens the visual field. These effects are temporary (Fuchs). In certain cases of optic nerve atrophy its local subcutaneous injection has, to say the least, coincided with an arrest in the progress of the disease, and has been followed by a somewhat increased acuteness of vision. Whether these effects are temporary or permanent, time and fuller statistics will show. 3. In a progressive case of this disease it is clearly our duty to state the above facts to the patient, and allow him to take the treatment if he is so inclined. 4. The strychnia should always be administered in the temple, and by subcutaneous injection.

Ophthalmia Neonatorum.—According to Wilson the demands of treatment and prophylaxis of this disease are:1, the antepartum care of the birth canal; 2, the scrupulous cleansing of the lids following expulsion of the head and constantly thereafter in suspicious cases; 3, the noninvasion of the palpebral sac by separation of the lids before the appearance of typical discharge; 4, prompt and absolute isolation upon the appearance of conclusive signs of specific inflammation; 5, thorough and systematic irrigation; 6, astringent application of silver nitrate in cases of prolonged suppuration. In conclusion, as an important adjunct to local treatment attention should be given to the general condition of the child in cases of debility and malnutrition. The measures directed toward the care of the infant are comprised in cod-liver oil inunctions, small doses of whisky internally and breast feeding. At the same time the mother should receive some form of tonic treatment.

Cause of Glaucoma.—The ætiology of glaucoma is still an unsolved problem, despite the progress in ophthalmology made possible through Helmhotz's great invention of the ophthalmoscope. Many theories have been advanced to explain what has so far proven to be one of the mysteries of ophthalmology. One of the latest of these theories is that promulgated by L. Lagueur in *Deutsch. Archiv. fur Klin. Med.*, Vol. 73.

Lagueur has been examining the eyes of rabbits, and has discovered secretory nerve fibers, distinct from those connected with the innervation of the ocular circulation, irritation of which causes an increase of the intraocular fluids. This hypersecretion leads to an attack of typical glaucoma as soon as the mechanism regulating the intraocular pressure fails to carry off the excessive amount of fluid. The pressure of these nerve fibers in man is not yet determined. If present, it is probable they are connected in their course with the cervical sympathetic nerves, in which case the good effect of removing the sympathetic ganglia of the neck in glaucoma would find a rational explanation.

The Royal Victoria Eye and Ear Hospital of Dublin, having recently heard some criticism concerning the extravagant management of hospitals in general, determined to ascertain by investigation and solicitation whether such reports were grounded in fact, or were they fancies of the gratuitous critics. In due course of time Lord Monk, who was placed at the head of the investigating committee found that the patients at the Royal Victoria Eye and Ear Hospital almost universally volunteered testimony that they were well cared for in every way; that their food was plentiful and of good quality and well cooked. Lord Monk ascertained that the cost of maintaining patients in this way only cost 13 cents a day of American money. He also ascertained that the cost of keeping one patient for an entire year was £10 1s 6d. This includes absolutely all expenses, food, medicines, surgical appliances, hospital employes, laundry; in fact, every possible expense is included in this estimate. As a reward for such favorable report an anonymous donor announced that he would give £1,000 toward a building fund on the condition that £1,000 be given by other people by the first day of November.

Conjunctival Discharges.—The bacteriology of conjunctival discharges is described by Thomson, who gives the different forms chiefly found, and the methods of staining. The gonococcus is one of the frequent forms in severe conjunctivitis, and the only form that could be confounded with it is the diplococcus intracellularis meningitis. It differs, however, as being mostly outside the cells and never within the nucleus; it also grows readily in cultures, while the gonococcus does not. It produces an acute purulent conjunctivitis and usually differs a little in microscopic appearance from the gonococcus, but they may be exactly alike. The pneumococcus is found frequently as the cause of acute contagious conjunctivitis, or "pink-eye," but the Weeks bacillus is by far the commonest bacterium. The diagnosis is readily made by slide smears. It is a short, thin bacillus, shorter and slightly thinner than the tubercle bacillus, and stains to nearly the same intensity as the pus cells, usually a very little deeper, but not so deep as the pus nuclei. It is, therefore, not so conspicuous as other more deeply staining germs, and the slide must be carefully and closely examined. In typical cases it occurs in large numbers lying scattered in the mucus and between the cells and the pus cells. The various forms of staphylococci occur commonly in conjunctival discharges and have very little especial significance.

Treatment of Detachment of the Retina by Injections of Sodium Chlorid.—Castresana announces that injections of a concentrated solution of sodium chlorid cure detachment of the retina by the strong osmotic currents and the slight irritation with consequent adhesion which they induce. Starkle has recently reported 23 cases thus treated, resulting in 6 complete and 10 partial cures. He used a 4 to 10 per cent solution which Castresana does not consider sufficiently powerful. He would probably have been still more successful if he had injected a saturated solution of the sodium chlorid such as Castresana recommends. He reports several patients treated in this way with the cure of all the recent cases. Detachment of long standing is incurable. In one patient the detachment had occurred four years previously in one eye and six months in the other. The first eye was not affected, but the detachment was entirely cured in the second eye with restoration of vision. He injects beneath the conjunctiva 2 gm. of a saturated solution of sodium chlorid to which two drops of acoin have been added. The injection is rather painful and causes considerable chemosis for a few hours, with irregular pulse and a tendency to vomit, but all these symptoms passed away in the course of twelve hours and the reaction was very slight to the second injection, which he found necessary in a few cases. No results were noted after the injections in two cases of six and two years' standing. He administers potassium iodid as an indispensable adjuvant to the local treatment. He considers this method of treating detachment of the retina as the most rational at our command. He illustrates the eye before and after treatment in the two perfectly cured patients.

The Localization of Foreign Bodies in the Eye.— *The Lancet*, London, for March 29, 1902, page 910, says: "Although the application of the Roentgen rays enables the presence in the eye of fragments of metal to be satisfactorily shown, the precise localization of such fragments is a much more difficult problem. The globe of the eye is in most persons deeply imbedded in the fat of the orbit, and the rays destined to reveal the foreign body have to transverse skin, muscle, and bone to an extent which requires prolonged exposure before good results can be obtained on the photographic plate. A little instrument has been devised by Prof. L. Webster Fox, of Philadelphia, Pa., which is described in the *Philadelphia Medical Journal* for February and which is intended to act as a localizer while enabling the time of exposure to the rays to be shortened to less than a second. It consists of an oval band of gold or silver 0.75 millimeter in width constructed to fit upon the cornea and provided with two gold stands crossing in front at right angles, thus dividing the instrument into quadrants. Prior to the period of exposure to the rays the cornea is rendered insensitive by the instillation of a drop or two of a solution of cocaine. The skiagraphic pictures show that some outlines of the localizer are better defined than others, the clearer outlines indicating that part of the localizer which is nearest to the photographic plate. To some extent, then, the position of the foreign body can be judged by the sharpness of its shadow. Its absolute position may be verified by a second, or control, test. This test is made by placing a plate, not on the temporal side, but in front of the eye, causing the X-rays to pass through the head. Professor Fox gives woodcuts which seem to show that the instrument which he has devised will prove useful in practice."

Iodic Acid in Trachoma.—According to Merck's Archives, Dr. Ichile, in *Rev. de Ther.*, states that iodic acid liberates iodin, and hydriodic acid is formed, destroying the follicles, killing the microbes and favoring leucocytosis. No scars result from the cauterization. In acute and subacute forms of granular conjunctivitis the author employs 5 per cent. solutions of iodic acid for irrigating the mucous membranes. In the initial period of trachoma he uses instillations of a 3 per cent. solution. In the cicatricial form of trachoma an ointment is preferable, as follows:

℞	Acidi iodici	gr. xii	.75
	Lanolini	ʒ vi	24.00
	Olei olivæ	ʒ vi	24.00

M. Sig.: To be applied locally once daily.

The action of the iodic acid may be assisted by the simultaneous administration of potassium iodid.

For massaging the palpebral mucous membrane the following salve is used:

℞	Acidi iodici	gr. xv	1.00
	Sodii iodici	gr. lxxv	5.00
	Acidi borici	ʒ iiss	10.00
	Vaselini	℥ iii	90.00

M. Sig.: Apply locally by massage to the mucous membranes.

Iodic acid is a colorless solid in the form of rhombic crystals; it is soluble in water, insoluble in alcohol; for use as a caustic it is made up in the form of a stick. In employing about the conjunctiva membrane, the strength of solution mentioned in the foregoing should be used.

Restricted Vision in Cities.—The *New York Evening Post* quotes from the *New Orleans Times-Democrat* as follows:

"Speaking of the practice of wearing glasses," said a well-known optician in Canal Street, "there is a curious thing about the human eye that the average person is constantly overlooking. We talk a great deal about the influence of color, about glare and all that sort of thing. Unquestionably, color has a great deal to do with the weakness of the human eye at this time. Glare figures as an important factor in the impairment of the human sight. In the matter of color, there is so much noting in these latter days that the eye is kept in an almost constant strain. Red is violently red, green violently green, and so on, until the eye is simply strained beyond the normal in an effort to visualize the hue, and hence the optic nerves are, in a measure, strained and injured. But this is not the greatest danger, when we come to think of the modern tendencies so far as the human eye is concerned. There are other conditions which are infinitely more injurious than the matter of color. The glare is bad enough, too. The electric and incandescent lights are simply fearful on one's eyesight. But the thing I guard with more than any other influence is the condition which limits the scope of one's vision. The eye should have a broad range. One should have the opportunity of seeing a long distance. We are denied this opportunity. We are hemmed and hedged in until the distance we are capable of seeing is very short indeed. This is why I am a strong advocate of parks and promenades. Green is naturally a restful color, and if the city could be provided with long avenues and splendid parks, where one's eyes could stretch out in a long vista, it would be a great thing."

Intra-Ocular Galvano-Cauterization.—Roscher announces that this method of treating infected wounds and panophthalmitis deserves more general adoption. It was first proposed and successfully performed by Van Millingen at Constantinople. He reported preservation of the sight and arrest of the process in three cases of incipient panophthalmitis. The edges of the wound were cauterized in narcosis and the wire loop was introduced through the wound in the sclerotic into the vitreous body and was then twisted around, bringing it into contact with the entire length of the wound and all the injured tissues. The current can be turned on before or after it is inserted. The operation was complete in three or four seconds, and the instrument was introduced to a depth of 4 to 8 mm. The conjunctiva was then sutured over the hole in the sclerotic, atropin instilled and the eye dressed. The injury of the sclerotic in each case had been followed by severe infection, intense pain, edema of the lids, chemosis and hypopion. All recovered after this single intervention, with vision of 3-6, 6-6 and 5-25. Roscher describes another case of injury of the sclerotic from which protruded a plug of purulent vitreous humor. The plug was pulled out and cut off, the cold loop introduced and the vitreous body and edges of the wound thoroughly cauterized. Narcosis was not induced and the conjunctiva was not sutured. The eye healed perfectly in a short time and vision has remained 5-5 during the six months since. Everbusch found the operation equally effective in a case of post-operative infection. Three similar cases have been reported by Bäumler and Van Millingen, and Roscher adds another. He also describes two hopelessly doomed cases in which he attributes the preservation of a good-shaped stump to the arrest of the infection by intraocular galvano-cauterization.

Strabismus in Children.—Parker points out the importance of early treatment of strabismus, and, in young children who cannot yet use glasses, he advises removal of all books, pictures and toys that require close observation, substituting for them wagons, hobby-horses, balloons, etc., which do not tax the vision. The child should not be sent to kindergarten, and if these measures do not prevent the squint from developing, a weak solution of atropin, one grain to the ounce, should be instilled into the eyes once or twice daily to partially suspend the power of accommodation. In this way the child may be cared for until old enough to wear glasses, which can be used by some children as early as three years. The shadow test and other means make the fitting of glasses to children perfectly reliable after the complete suspension of accommodation by mydriatics, and a full correction of the refractive errors should be given to be worn constantly. The Dyes should be retested once a year and refitted if necessary to decrease the strength of the glass as given to correct farsightedness. The use of glasses will frequently cure the squint, but should they fail, cover the good eye for an hour, twice daily, thus enforcing the use of the squinting eye. By this means the vision may be improved and the loss of co-ordination corrected. The stereoscope can often be used for older children; by marking corresponding points on the two pictures, and asking the patient to interpret them, one can tell which eye, or if both eyes are being used. By the variation of pictures the child is not only being treated but entertained. The vast majority of cases, however, will not be cured by means other than surgical, and if at the sixth or seventh year the squint is permanent and constant, with or without glasses, surgery should be resorted to. If each test, however, shows a different error, indicating that the abnormal condition is not fixed, it is advisable to wait until the eyes and muscles are more fully developed. A premature operation may lead to impaired vision. Success requires the study of each individual case.

Sympathectomy in Exophthalmic Goiter.—Balacescu reports 17 cases of exophthalmic goiter treated by total bilateral resection of the cervical sympathetic. The results are 10 cured; 2 cured but with recurrence since, and 5 improved. The patients have been under observation twenty days to two years. He considers it comparatively harmless, and the most effective method of treating this disease.

Colburn has experimented to induce glaucoma in animals by studying the course of the lymph streams in the anterior segment and endeavoring to affect them, studying the effect of increased pressure on the anterior and posterior chambers, by experiments with the results of introduction of foreign material into the eye, and with the indirect introduction of substances through the circulation and the closure of channels of exit by affecting the changes in the ciliary region and aqueous. The animals employed were cats and albino rabbits. The summary of the results is as follows: 1. Intraocular changes may be induced by deleterious substances in the circulation. 2. The effect of irritating material in the circulation induces, first, congestion of the ciliary body and iris and then vesical formation in the ciliary region followed by fibrinous exudate into the anterior and posterior chambers. 3. Fibrinous and albuminous exudates have a predilection for the anterior chamber, depositing or forming on the anterior surface of the iris in Fontana's spaces. 4. These deposits, usually accompanied by deep anterior chamber, block up the exit at the angle and increase the tension. When the irritation is brief the exudate may be absorbed and the tension returned to normal. If the irritation is sufficiently prolonged or intense, glaucomatous iritis with its attending evils may ensue. 5. The cause of glaucoma is apparently some lesion which pushes the iris and lens forward, making the anterior chamber shallow and blocking the exits at the angle with the root of the iris. This cause is to be found in the ciliary body and processes. He remarks that while these experiments have not added directly to our knowledge of the cause of glaucoma, they have thrown new light on the functions of the ciliary body and iris and on the conditions in which serous and fibrinous iritis and cyclitis occur, showing that the intraocular circulation of certain substances is quite sufficient to produce these diseases. Therefore, the constitutional element should not be disreparded in their treatment.

The Eyesight of Children.—Comment has often been made, much more so in the past than now, on the large number of persons in American cities, including even many children, who wear glasses, and it has been suggested that this state of affairs is the expression of a fad or of a bit of affectation or of avarice on the part of the oculist. The fact is, however, that as a result of our indoor habits, demanding constant use of the eyes at short range, ocular defects that would otherwise cause no trouble, and thus remain concealed, become manifest as eye-strain in one form or other. To the credit of American ophthalmologists be it said that they were among the first to appreciate the significance of such eye-strain, and to the correction of its cause they have given most assiduous, intelligent and successful attention. We think it may be stated, without fear of contradiction, that no better refractive work—including muscle equilibration—is done than that of the ophthalmologist of the United States. As a result of observations made upon children in the public schools the relatively large preponderance of ocular defects has been amply demonstrated, and some investigation made by a competent Swiss oculist tend to show that similar conditions exist among the school children of continental Europe. In the course of examinations into the eye sight of 19,947 children in the public schools of Zurich during the eight years from 1884 to 1902 defective vision was found in 19.1 per cent of this number, in the following percentages: Hyperopia, 1.2; myopia, 0.9; astigmatism, 8.6; spasm of the ciliary muscle, 1.4; strabismus and amblyopia, each 1; corneal maculæ, 1.3, and various other defects, 1.5. It is uncertain from the accessible report whether a cycloplegic was employed invariably or at all in making the examinations, but the statement that an exact ophthalmometric examination of eyes with defective vision was an absolute necessity for the detection of the large number of cases of astigmatism suggests at least that paralysis of the ciliary muscle was not induced as a rule. It seems also that only those children may have been examined who complained of defective vision or apparently had impaired eye sight. In accordance with the results of the examination, written instructions were given in the case of each child, defining the distance of the seat from the window and from the blackboard, the use of spectacles, etc. The parents were informed when the eyesight was defective and were referred to an ophthalmologist for treatment. The Germans certainly deserve credit for valuable contributions to both the theory of optics and the practical application of optical principles, but they have been slow to make such application to the measurement and adjustment of glasses for the correction of errors of refraction.—*Editorial in the Jour. Am. Med. Asso.*

Functional and Paralytic Strabismus.—By Dr. D. B. St. John Rossa (*N. Y. Medical Record,* May 3, 1902).

After speaking of the improvement in vision in the amblyopic eye in cases of functional strabismus often obtained by the use of proper correcting lenses, stereoscopic exercises and the exclusion pad, the author notes the number of cases of squint cured by these measures alone. About 30 per cent of all cases of strabismus are thus relieved, thus obviating the necessity of operation.

The chief import of the paper, however, is to call attention to the fact that strabismus is a *bilateral* and not a monolateral affection. Considered from this standpoint the erroneous supposition that squint has its origin in weakness of the ocular muscles themselves is done away with, because when the "fixing" eye is covered, the squinting eye fixes, that is, turns into position, while the better eye squints or turns behind the cover. As the author says, the primal cause of squint lies not in the muscle itself, it is only the fixation power that is weakened or lost.

Secondly, by considering strabismus a bilateral affection the treatment of it may be undertaken on a scientific basis, and both eyes operated upon when any operation is necessary, instead of one, as was formerly the custom.

The author objects to the term "concomitant" in the definition of strabismus, saying all strabismus with the exception of paralytic squint must necessarily be concomitant. He thinks it better to adopt the name of "functional strabismus" and "paralytic strabismus," as suggested by Panas, to describe the two great varieties of strabismus.

In conclusion the author says:

"An improper nomenclature often leads to misconception of the nature of an affection. It may prevent the adoption of better means of cure. Those who speak 'monolateral' squint are not only speaking against the facts of the case, but they are also preventing those whose knowledge, perhaps, is not so complete as their own from a full appreciation of the advantage of bilateral operation for a bilateral affection. Great was the work of Graefe in many departments of ophthalmology; that which he did in strabismus was not productive of good results. He was working on wrong lines, and he led men with less genius into error by his ideas that the squint could be better treated by what he called dosage of the operations—graduated tenotomy is a later term. This is not correct, and the theory was evidently based on the idea that a certain power of one externus or internus over that of the other was the fault that produced the strabismus. Even in Graefe's time it was the opinion of Donders that it is not the muscle that is at fault, except in paralysis, but fixed conditions of the eyeball, to which may be added, in exceptional cases, central disease.

"In the interests, then, of what I conceive to be scientific truth, I object to the use of the term, 'monolateral strabismus,' as indicated above. While there may be an apparent convergence or divergence of one eye in functional strabismus, it is always shown to be bilateral on the application of a simple test."

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ORIGINAL ARTICLES.

SUB-CONJUNCTIVAL INFLAMMATIONS.

BY DR. H. GRADLE,
CHICAGO.

The term "sub-conjunctival inflammation" seems appropriate for a not uncommon lesion for which no definite name exists. Yet the disease is not very rare, as I have records of some 25 instances seen amongst my last 6,000 patients. It is a patch of inflammation plainly located in the sub-conjunctival tissue over the eyeball and not quite identical with episcleritis. The patch is of irregular shape and size, inward or outward from the cornea, oftener below than above the horizontal meridian. It is slightly but distinctly swollen and marked by congested conjunctival vessels, beneath which there is a variable injection of the deeper vessels of a violet hue. Most commonly there is a pale zone between it and the corneal border. In less common instances the red patch extends to the limbus, where it ends abruptly with a steep change of level, even though the swelling be not over half a millimeter in height. The marginal inflammation a hasty observer may mistake for circumscribed symptomatic ciliary injection. Sub-conjunctival inflammation occurs oftener as a single patch than in multiple form. The disease differs from typical episcleritis by being distinctly more superficial, not nodular, and leaving no slaty discoloration. As a rule, too, it responds better to treatment. There are, however, transitions between this disease and true episcleritis.

Its symptoms are limited to irritability and weakness of the eye, variable with the intensity of the inflammation.

I shall describe the etiology and incidentally the course by passing from the best defined to the least understood instances.

Sub-conjunctival inflammation, either circumcorneal or more peripherally over the sclera, can occur as one of the manifestations of scrofulous ophthalmia. In the course of protracted relapses phlyctenules do not follow the typical evolution of the earlier eruption and often change into various more or less persistent inflammatory lesions. Amongst these I have seen a few times patches of sub-conjunctival inflammation over the sclera. In the case of multiple phlyctenules at the corneo-scleral border, I have also observed the inflammatory swelling beginning abruptly at the corneal margin and sloping gradually towards the periphery.

In scrofulous children I have found these lesions lasting weeks, sometimes a good many weeks, yielding slowly to the usual local treatment, but apparently rebellious in proportion to the other evidences present of scrofulous mal-nutrition.

The most frequent cause of the lesion in adults, especially young adults, I have found to be an acute conjunctivitis involving the ocular conjunctiva. As this receded it left as residue the characteristic patch of sub-conjunctival inflammation. Most of these patients had not been under efficient treatment. Under these circumstances I have seen it about as often one sided as bilateral. Most of the cases I saw only after the conjunctivitis had apparently ceased, leaving, however, some inflammation with slight follicular roughness of the upper transition fold. This latter localized conjunctival lesion co-existed so often that I cannot but regard it as of etiologic significance. In some of these instances the sub-conjunctival inflammation had lasted since many weeks; a few times, even, since some months. In others the one eye had recovered without treatment, the patient calling on account of the persistence of the patch in the other eye. In every case (about 10), apparently the sequel of catarrhal conjunctivitis, I found a definite influence of nitrate of silver solutions applied to the conjunctiva, especially of the fornix, followed by the local use of calomel. The treatment had to be continued from a few days to about three weeks.

Twice I have seen one-sided sub-conjunctival inflammation begin in the form of a vesicle over the sclera, probably a herpes febrilis. The subsequent sub-conjunctivitis lasted two to three weeks and the termination was probably spontaneous and apparently not due to the treatment.

In seven other cases and also in some four or five older ones of which I have incomplete records, no definite cause could be learned. Twice I have seen marginal inflammation in diabetics lasting weeks with remissions and relapsing after months. But the same form of disease of similar persistence was seen much oftener in non-diabetic people, however, without relapses. With the exception of the diabetic instances, the only relapses I was sure of were seen in two women in whom the attacks recurred alternately in either eye at intervals of months, lasting but a few days each time. As the attacks began with severe pain, I gave both patients antipyrin at once, and was told that the pain ceased quickly and the attacks did not last as long as in previous spells. I do not know, however, about subsequent relapses. None of the other patients gave any history of previous attacks. The disease had existed usually many weeks in these cases of unknown etiology. Several of them got well in a few days after using yellow ointment or calomel. When these local measures failed I ordered salicyliate of sodium in large doses; sometimes with prompt influence, in other cases with failure. But in the end all patients recovered.

Although this disease cannot be called rare, it is not well recognized in literature. It probably passes as episcleritis in most instances. While this name may be accepted for some of the more severe forms of unknown etiology, it is not proper for the other cases, as they differ clinically and anatomically from ordinary episcleritis. Von Graefe described in his lectures (edited by Hirschberg, 1871, p. 161) under the name of "Sub-conjunctivitis," a similar clinical appearance, characterized, however, by invariable relapses. The same disease was again described by Hutchinson in the Bowman lecture of 1884 as "hot eye." He defines it as recurrent but very transient, spells of localized redness of the sclera due to gout. About the same description was given by Nettleship in the Transactions of the Ophthal. Society of the U. K. in 1887 (page 91). The most extensive observations, however, have been published by Fuchs, in the meeting of the Brit. Med. Assn., 1895, and more fully in the Archiv. f. Ophth, Vol. IV, page 229. Under the title "Episcleritis periodica fugax" Fuchs refers to the histories of 22 patients, in all of whom attacks of localized episcleral swelling and injection recurred at intervals of weeks or months, lasting in some but two to four days, in others two to four weeks. Some, but not all, of the patients complained of severe pain. The only assignable causes were rheumatic tendency in a few and possibly (not positively) malaria in some of the others. In most instances no cause could be found. The two cases of mine with a history of recurrences and perhaps the relapsing inflammations of my two diabetic patients might be classed under the head of Fuchs' Periodic Episcleritis (of which I have also seen a few typical instances previously). The others described in this paper seem to me to present a type of disease different from any current description.

A REPORT OF SOME INTERESTING OPHTHALMIC CASES.

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CHICAGO.
Professor of Ophthalmology in Post Graduate Medical School, Clinical Instuctor in Ophthalmology in College of Physicians and Surgeons, the Medical Department of the University of Illinois.

Illustrated.

(A) A FISTULA OF THE CORNEA, WITH A HERNIA OF THE IRIS, AND A CYST OF THE CONJUNCTIVA CONNECTED WITH THE ANTERIOR CHAMBER.

(B) A DISLOCATED LENS IN THE VITREOUS OF THIRTY YEARS' STANDING IN ONE EYE; AN OPTIC NEURITIS WITH A SUBSEQUENT OPTIC ATROPHY IN THE OTHER; BOTH CONDITIONS DUE TO A LIKE INJURY RECEIVED AT DIFFERENT INTERVALS.

(C) A PARESIS OF THE LEFT ABDUCENS AND A CONVERGENT STRABISMUS IN THE RIGHT EYE, WITH PECULIAR VISUAL FIELDS; ALL BEING DUE TO HYSTERIA IN A MAN OF SEVENTY.

(a) The first case is that of a woman, aged 40, in good health, with no family history or accident bearing upon the present conditions. The only lesion that could have any bearing is the sight of an old corneal cicatrix at the clero-corneal margin on the temporal side of the right eye. Recently there appeared a swelling in this eye which kept on increasing in size until it was with difficulty that she could close the eye. There was no interference with vision and no pain. However, as it did not disappear under "home treatment" after a week or so, she consulted me for relief.

Upon close examination the following conditions were found:

On the temporal side of the right eye, on the interpalpebral portion of the conjunctiva, was a cyst-like tumor, about 10 mm. in length, 5 mm. broad, and apparently 5 mm. deep. The whole conjunctiva in the immediate vicinity was very vascular, and the corneal edge was intimately connected with it. The cyst was filled with a clear and transparent fluid. The margin of the cornea in connection with it was elevated and there evidently was an opacity at this point. Upon close inspection, a small knuckle of iris, not including the pupillary margin, could be seen extending into this cyst. No traces of an old or recent iritis or the effects thereof could be detected. The iris responded normally to atropine. Upon gently pressing this cyst, the anterior chamber grew perceptibly deeper and the iris receded visibly, i. e., all but the little knuckle. Upon removing the pressure the cyst refilled and the chamber grew shallow. However, this iris knuckle did not change its position at any time.

The cyst was punctured and drained. This allowed the chamber to become shallow and the iris to come forward. Within twenty-four hours thereafter the cyst was reformed and everything appeared as prior to the puncture.

No reason could be assigned for this condition, excepting that an old cicatrix, the result of an ulcer of many years ago at this very point, had given away. However, the conjunctiva did not give and it thus formed the anterior wall of the cyst. The iris, when the cornea had ruptured, prolapsed and thus became incarcerated and formed the knuckle above mentioned. This allowed the establishment of a small fistula between the anterior chamber and the sub-conjunctival space, with the outflow of the aqueous into this space and the formation of said cyst.

After the eye was thoroughly cocainized the cyst was well laid open and the base curetted. A fine probe could now be passed along the lower border of the knuckle of iris into the anterior chamber. An attempt to free the iris having failed, the anterior chamber was opened at this point and a small iridectomy made, including the little knuckle. The eye was now carefully irrigated and a pressure bandage applied. An uneventful recovery took place and the bandage removed in a few days. No evidences of a return can be noticed, though it is over a year ago since this was done.

Aside from the giving of the old corneal cicatrix what was the possible cause for this condition just described?

(b) Mr. T. D., aet., 53 years, watchman by occupation. There is nothing in his personal or family history bearing on the present condition. He received a similar injury to each side of the head, one thirty years ago, the other six months ago. After each accident, which was a severe fall, he was dazed and had a headache lasting several days. About a week after the first accident, though the vision in the right was found to be poor, he was able to resume his duties. But after the second he never was able to work again because of insufficient eye sight.

The following are the conditions: Right eye, external appearance normal; vision was equal to counting fingers at six feet, tension trifle larger than in the left eye; reactions to light and mydriatic normal.

Upon an ophthalmoscopic examination, floating opacities of various sizes were found in the vitreous; retina normal, likewise the nerve head. In the lower anterior portion of the vitreous chamber, apparently directly behind the iris, the upper edge of the lens was seen. It was pearly white and stationary, no matter in what direction the eye moved. The capsule was intact and the lens nucleus appeared suspended in a fluid, strongly resembling a Morgagnian cataract. With a plus six sphere, vision was raised to 20/40; with a plus nine he comfortably read fine newspaper print.

Judging from this state of refraction the patient evidently was a myope in his youth.

The interesting feature in this eye is that the lens was dislocated for thirty years, entailed scarcely any complications and today is an exceedingly useful organ. Whether or not all the vitreous opacities are due to the dislocated lens is a question. For a few of them are also found in the left eye. No doubt some of them were the result of his myopia as well as of the chorioiditis, which was present to a limited extent in both eyes. It is a well established fact, however, that a reclinated lens does cause vitreous opacities and chorioidal complications.

Six months ago he fell and struck the left side of his head in exactly the same way as he did the right thirty years ago. Several days after the accident he could see fairly well but vision rapidly failed from now on. He consulted his family physician but received no benefit, though he treated him for several months. All this time, he was dependen tupon the right eye, poor as it was, for he was not wearing any correction. At this time he presented himself at my clinic, hoping to get some relief.

Vision in this eye amounted to very faint form and light perception only. External appearance was normal and so was the iris reaction. The ophthalmoscope showed a few vitreous opacities and a well established optic atrophy in addition to a small posterior staphyloma. A few areas of atrophic chorioiditis were also seen. There were more, as well as larger, vitreous opacities in the right than in the left eye. The nerve head showed distinct signs of atrophic cupping.

In view of these conditions, he was told that the eye was beyond all hopes and treatment would avail him nothing.

The question is, what was the actual cause of the optic atrophy

0; tremulous iris: anterior chamber deeper than its fellow: pupil a in the left eye? Could the injury have produced a hemorrhage into the optic vaginal sheath space and remained unabsorbed? This, perhaps causing an optic neuritis, was followed by a rapidly fatal optic atrophy. Or, on account of the concussion could a neuritis have been produced, finally to be followed by the optic atrophy? Again, may there have been a fracture in the vicinity of the sphenoidal fissure or optic foramen which could have involved the nerve directly? Perhaps too, the nerve may have been completely ruptured. Still the findings and the history of the case are against the latter two suppositions. There were no evidences of any intracranial or intraorbital pressure.

Whatever the lesion was, it implicated the left optic nerve only and not the tract or chiasm, as the right eye gave no symptoms of either the latter two having been involved. Other than this last suggestion, no positive cause can be assigned for the condition in the left eye.

Strange it is yet of good fortune for the patient, that the accidents produced such extremely different lesions in the two eyes. In this respect the case is unique and an extended search into the literature fails to yield many like this one.

The patient is able to follow his occupation as watchman, now that he is wearing the proper lenses for the right eye.

(c) The peculiar combination of disassociated symptoms, though of a hysterical type, renders this case highly interesting. The mere fact of their appearance in one so old, gave evident suspicions that there might be some intracranial lesion. Though hysteria is very protean, still the symptoms manifested are usually in a manner regular and associated, i. e., arise in such order as if dependent upon some actual pathological lesion. However, the symptoms elicited here may well be said to be heterogeneous, for they lacked association and could not be ascribed to any single, or even multiple lesion of either brain or cord or both.

Mr. P., age 74 years, with no personal or family history, accident or recent illness of any bearing on the present condition, upon getting up one morning, some six months ago, noticed that everything was double. Not only that, but things were on a slant. In walking about, the sidewalks were double and one ran diagonally into the other. He noticed no loss in the acuity of vision and the diplopia was absent at the near point. He was compelled to turn his head to see anything at the side. Unless objects were directly before him, he could not see them. He said it appeared to him as if he were looking through a large tube. He constantly kept the right eye closed so as to avoid the diplopia.

He complained of a dull headache on the left side and also of a vertigo. This vertigo, however, he has had for several years.

The vision in the right eye is 20/50, in the left 20/60, and is not improved by lenses. The reaction of each pupil is normal. There is a convergent strabismus in the right eye of about three or four lines. This also appeared suddenly one morning, a day or so after the diplopia. With a good deal of effort, he could for a moment or two, overcome the strabismus and maintain apparent parallelism; but he could not overcome the diplopia. Upon convergence for the near point, the diplopia and strabismus disappeared. With closure of the left eye, the rotatory movements of the right were normal in extent.

In the left eye, there was a paresis of the external rectus, verging almost upon a paralysis. He could only turn this eye about one-half line outward beyond the median perpendicular plane. This paresis, in conjunction with the strabismus, produced a homonymous diplopia, which could be overcome by a 25 degree prism, base out. Strange, that with a paresis in this eye, he should close the right so as to avoid the distressing diplopia for the far point.

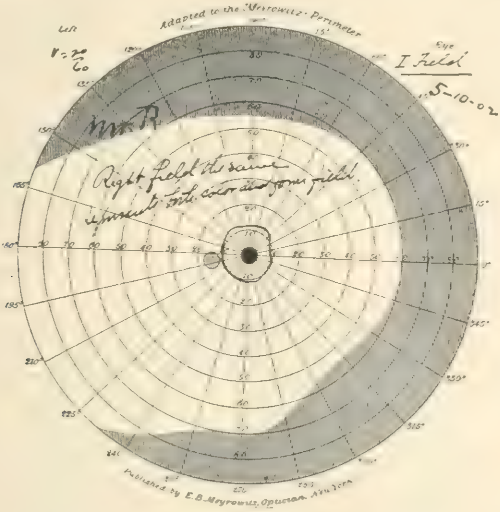
He possessed normal convergence power and with a proper correction read the daily papers with ease. In reading, he kept both eyes open and had no diplopia or strabismus.

The fundus condition in the both eyes was practically identical, and is as follows:

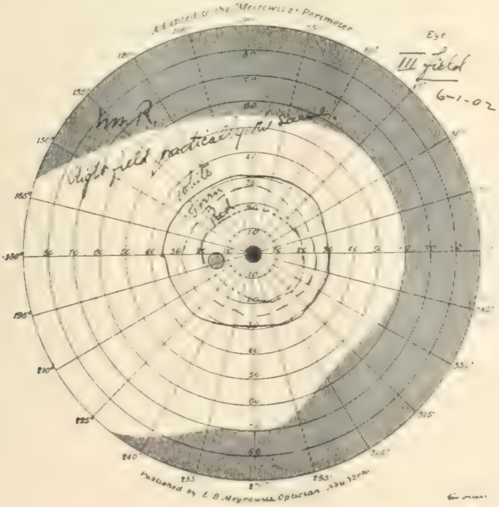
There was a well advanced cortical cataract in the temporal half of the right, and the nasal half of the left lens. The vitreous, chorioid, and optic nerve were normal. The retinal blood vessels did not show any signs of pressure. In the lower nasal quadrant of each retina, several colloidal areas of various sizes could be seen; a few were in the region of the macula. These spots appeared very much like albuminuric retinitis. But, a careful urinary and cardiac examination at different intervals proved the absence of any kidney lesion.

(See plate on page 467.)

The field of vision in both eyes was symmetrical in detail and when first taken was concentrically contracted to within ten degrees of the direct fixation line. The field for colors could not be taken at this time as they, too, were contracted to this narrow limit. However, after he was treated for a short time, the color fields could be taken. They are decidedly characteristic of hysteria, both as to transposition of colors and the increase in size of field. The usual overlapping in the color fields was not obtainable, as the charts show. A few of charts here given show the fields at various stages of the case. There is no return to the normal field of vision on account of the presence of the cortical cataracts.

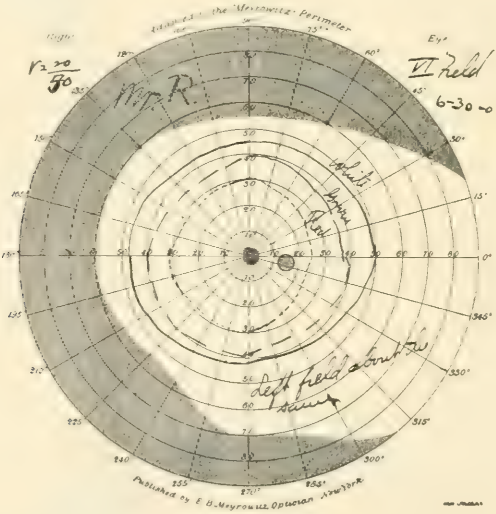

Adapted to the Meyrowitz Perimeter
Left
V = 20/60
Eye
I field
5-10-02
Mr. R.
Right field the same
represents both color and form fields.
180°
165°
195°
210°
225°
150°
15°
345°
330°
315°
Published by E. B. Meyrowitz, Optician, New York

It was while taking the first fields that he made the remark about his looking through a large tube. This induced me to take his field at about two meters, and, strange to say, it was as contracted as with


Adapted to the Meyrowitz Perimeter
Eye
III field
6-1-02
Mr. R.
Right field practically the same.
White
Green
Red
180°
165°
150°
135°
195°
210°
225°
240°
315°
Published by E. B. Meyrowitz, Optician, New York

the perimeter. Even at four meters, the field was extremely contracted. This tube-shaped field soon disappeared under the treatment.

The diagnosis of hysteria was made by exclusion. For, the above set of symptoms could not be ascribed to any focal brain or cord lesion. Aside from the eye symptoms, there were no other hysterical stigmata or manifestations. A thorough physical examination at stated intervals, as well as an exceedingly close watch of the patient, gave no other than the above mentioned data. If there had been any true organic lesion of the brain or cord or both, there would have been some other local or general systemic complications associated with this peculiar eye condition. Then, too, the complete restoration of the ocular muscle function and the visual fields, after a simple line of treatment, left no doubt as to the correct diagnosis.



Mental suggestion, in addition to strict hygienic regulations, prescribed diet, with rest in bed for some time, and the administration of large doses of potassium iodide, and the injections of strychnia, was the course pursued. At the same time, systematic prism exercise was employed for the left external rectus. After about four months of this regime, altered at times, the patient completely recovered.

(See plate on page 469.)

The points of interest may be tabulated as follows:

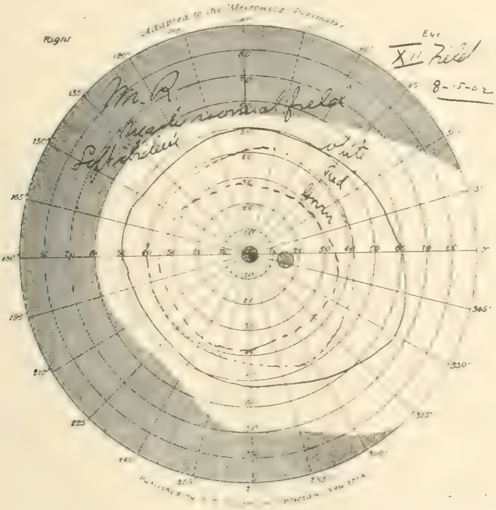
1. The extreme age of the patient.
2. The limitations of all the symptoms to the eye.
3. The peculiar combination of these symptoms.
4. The identical concentric contraction of the fields for color and form; the non-overlapping of the color fields.

5. The symmetrical cortical cataracts and the colloidal spots in the retina.

6. The diplopia for distance and its absence for the near point.

7. The peculiar tube-shaped field of vision.

Perhaps, the most significant of all these symptoms is the tube-shaped field of vision. This peculiar field is not obtainable in reality, as it is a physical impossibility. For, in any ocular lesion other than hysteria, the field of vision grows larger the farther the patient is removed from the center of the perimetric arc. This is due to the divergence of the rays of light. In no true pathological lesion can such a tube-shaped field be obtained. Therefore, this field may be considered pathognomonic of hysteria.



Greef, of Berlin, was, perhaps, the first to call attention to this particular field of vision. He regards it as decidedly hysterical, and cites a case of a child which demonstrated a typical field of this kind in the *Berliner Klinische Wochenschrift, No.* 20, 1902.

SUITE 1400, 100 STATE STREET.

Dr. Arthur G. Hobbs of Atlanta, Ga., has succeeded in having introduced into the Atlanta Public Schools the Allport system of examining the eyes and ears of the school children.

CASES OF LENTICULAR OPACITY—CATARACT CURED OR RELIEVED BY TREATMENT.

BY H. V. WÜRDEMANN, M. D.
MILWAUKEE, WIS.

In the discussion of Dr. W. R. Pyle's paper on above subject at the 1902 meeting of the Section on Ophthalmology of the American Medical Association, I reported the following cases:

I. Miss A. P., of Manitowoc; age 28; school-teacher, cashier and librarian: first seen February 2, 1895; came on account of diminished vision, which was not sufficiently relieved by glasses that she was wearing, —5.00 spheres; general health said to be good, but eyes had been getting more short-sighted for years. Without glasses R. and L.=fingers at 2m. With correction R.—6.00 ⊃ .50—180°; L. —6.00 ⊃ —.50 180° = 6/XII. Examination under mydriatic showed radiating lenticular opacities; the lens segments being well marked; the opacities extending from the periphery nearly to the center of the lens; ophthalmoscopic examination showed marked congestion of the optic discs and chorioiditis. Treatment by atropine, rest and correction of the refraction, syrup of the hypophosphites compound, later pill Blaud, which was not well borne and for which the hypophosphites and the bromide of gold, arsenic and mercury were substituted.

September 9, 1895, the lens opacities had almost disappeared, only a few striæ being observable; under mydriasis the vision then R. and L. = 6/VI. The case was seen steadily several times a year until May 28, 1900, when V. in R. was 6/VIII and L. 6/XII; opacity of the lenses again plainly observed and greater in right than in left. The vision remained stationary for a year, when in September, 1901, she went to work as cashier in a dry goods store in a small town; in December, 1901, the vision had decreased to R. 6/VIII; L. 6/XVIII; the opacities in lenses increasing; work was then discontinued and treatment with the gold, arsenic and mercury internally given; May 14, 1902, the opacities were found to have greatly decreased, the vision being 6/VIII and 6/XII; chorioiditis was not observable; patient had greatly improved in general health and made up her mind that use of her eyes for near work was not consistent with preservation of sight. At this date, June 26, she is in good general health. This patient is yet under general observation.

II. September 23, 1897, F. P., of Oshkosh, age 17, schoolboy, came complaining of greatly diminished vision in the right eye and jerking of the left. V. R. 5/XXV eccentrically; L. 5/IV with vertical nystagmus on monocular fixation, right sclerotic congested; tension —1, semilunar ring of lenticular opacity, turbid vitreous, nasal portion of fundus could not be plainly made out and at first retina was supposed to be detached. Later this cleared up so that extensive vitreous opacities were made out. Spots on the posterior surface of the cornea were plainly seen and the condition was diagnosed as uveitis. In the left eye one discrete spot of chorioiditis was apparent. The young man was greatly troubled with stomach and intestinal indigestion, was eating everything and particularly sweets and starchy foods. Blood examination was normal, excess of uric acid and urates in urine; the patient was greatly troubled by flashes of light and photophobia. Treatment was instituted by rigid diet and regimen, administration of mercury by inunction, several pilocarpin sweats and later iodide of mercury and mixture of the bromide of gold, arsenic and mercury. Under this form of treatment the uveitis gradually subsided, the lenticular and vitreous opacities becoming absorbed; the latter entirely so, February 3, 1897, having almost entirely disappeared. In the left eye at this date the chorioiditis was more marked, being of the disseminated variety. August 13, 1898, V. R. = fingers ½m., L. 6/VIII; mixed treatment was instituted. The right eye at one time became divergent but as the iris regained its normal color and mobility it became parallel with the other. Patient was lost sight of for about a year. When he returned February 15, 1902, he was found to have become a heavy, hardy man; the left eye being normal, while in the right the nerve and retina were atrophic, the eye having become useless, the vision being reduced to light perception and the lens was found to be slightly opaque. No further indications for treatment at this date.

III. Mrs. A. B., age 41, first seen June 27, 1898, with small error of refraction: R. + .50 ⊃ + .37, 180°; L. + .75; returned June 30, 1899, when the refraction was to have changed to R. + .25 ⊃ + .25, 180°; L. + .62 ⊃ + .25, 180°. On both these occasions cycloplegic being used. August 29, 1901, the refraction had not changed but the vision with the above glasses was 6/XVIII; examination with mydriatic showed cortical, peripheral and nuclear cataract. Advice to stop all near work was given and treatment by the bromide of gold, arsenic and mercury administered. November 27, the vision R. = 6/XII; L. 6/VIII; the opacities in lenses increasing, some stellate in the right and the sectors of the lenses showing distinctly. December 12, 1901, vision R. 6/XII; L. — 6/XXIV; treatment continued. March 21, 1902, vision R. 6/XII; L. — 6/XII; sent to Dr. Casey A. Wood of Chicago in consultation. The lens opacities were much less than at previous visit. June 1, 1902, lens opacities lessened in amount; vision, both eyes 6/XII. I could at no time satisfy myself that chorioiditis was present. In August, 1902, Mrs. B. saw Dr. Pyle in Philadelphia by my request, who agreed with my treatment.

In spring of 1899 the patient married a physician, an old gentleman, whose sight was failing on account of central atrophy of the chorioid and retina and read a great deal to him. At this time the optic nerve head and the chorioid were found to be much congested; advice to stop all work was given. This patient is yet under general observation.

The above three cases are the only ones that I have seen, in special practice of 14 years, which have been observed sufficiently long to determine the disappearance or modification of opacities of the lens in comparatively young persons. In all three cases there was chorioiditis. In two of these marked over-use of the eyes was manifest. In two of them there were disorders of nutrition. In all three the chorioiditis was relieved by treatment and with it the nutrition of the lens was sufficiently improved so that the lenticular opacities have been caused to disappear. The vision in two of the cases has been kept nearly normal; in the other the result has been atrophy of the optic nerve and retina. I have seen comparatively large numbers of cases of stationary lenticular opacities of the cortex; the most of them having the radiating or wheel form and in most cases the opacities being most prominent in the lower nasal quadrants occurring in persons over 60 years of age. While these may be called "cataract," yet in such cases to the patients or even to physicians I prefer to call them "opacities of the lens of stationary type."

Dr. Guy L. Noyes, formerly demonstrator of ophthalmology at the University of Michigan, has been appointed professor of ophthalmology at the University of Missouri, Columbia.

The Chicago Eye, Ear, Nose and Throat Hospital, desiring to protect its patients from danger from fire, has recently erected a teel stairway fire-escape, which is connected with each room by a steel balcony. This gives a direct means of exit to the ground by an outside stairway from every room in the building. This equipment makes the hospital perfectly safe from loss of life by fire.

ON THE CONFUSION IN METHODS OF NUMBERING AND USING PRISMS.

BY DR. LUCIEN HOWE.

BUFFALO, N. Y.

It is evident that if there were less confusion in our method of measuring and describing muscular anomalies, ophthalmologists would not only understand each other better but also more uniform results could be obtained in examination and in treatment. The object of this paper is therefore, to call attention very briefly to that confusion and how it may be remedied at least to some degree.

First. A certain small part of this confusion is due to the lack of uniformity in the prisms themselves.

As one phase of this subject has already been considered at the International Congress in Berlin, it is unnecessary to consider the relative advantages of numbering prisms according to the angle, to the prism dioptrie, centrad, etc. It is sufficient to point out the fact that there still remains a difference in methods of numbering, and that prisms supplied by opticians do differ from each other so decidedly as to have this difference of real clinical importance, especially in the higher numbers.

A second source of confusion is the lack of uniformity in the manner of using the prisms to test the position of the eye when at rest, the static condition or the so-called muscular balance.

It is out of place here to discuss the relative value of these different tests, either the "inspection" or "cover test," Græfe test for distance, the Maddox rod, the phorometer, etc.

The actual fact is, that according to our present methods these different tests often give different results when tried upon the same individual at the same sitting, or the same method may give different results upon the same individual at different sittings.

In other words, there exists as to this, very decided confusion. It is beyond the scope of this paper to consider the causes of this confusion, but suffice to say that with certain precautions as to uniformity in the methods, it is possible to obtain much greater or entire uniformity in the results of measurement of the so-called muscular balance.

A third source of confusion is the lack of uniformity in the manner of using prisms to test the power of adduction and abduction—or the dynamic condition of the eyes. It is well known that if we hold before one eye any one of the revolving prisms and slowly turn the prism in such a direction as to bring the base out, we will find that most individuals can gradually increase their adduction to twelve or fifteen degrees or much more before diplopia is produced.

On the other hand, if, after a few minutes' rest, a single prism, but a weaker one, be placed before the same eye in the same way, namely, with the base out, then we often have at once a distinct diplopia. In fact, it may be necessary to lessen the strength of the prism by several degrees before the images blend, that is, before the degree of real adduction is measured. In other words, when a muscle is measured by gradually increasing the strength of the prism, we find that the desire to fuse the images gives us apparently a high degree of strength for that muscle, whereas if we begin with a strong prism and then decrease the strength, we obtain another and quite a different measurement for the power of that muscle or group of muscles.

Now, the fact is, that some practitioners use one method, obtaining one set of results, and other practitioners use another method, obtaining results quite different. It is true greater uniformity would be found if all employed only the separate prisms from the test case. But unfortunately they will not do that.

So great is the simplicity and rapidity with which tests can be made by means of the prisms in series, or by the revolving prisms, that these have been and always will be used by ophthalmologists, and it remains only to adopt some uniform method of testing so that the individual practitioner may know his own results and others may understand that of which he speaks or writes.

Without entering into detail, it may be stated as to this point also that proper percaution as to uniformity in method will give much more uniform results.

A fourth source of confusion which should be mentioned is in the different terms used to express the same muscular anomalies. The nomenclature of Græfe is still employed in Europe in the terms "latent" convergence, divergence, etc., while usually in America and occasionally in England, we find the conditions described as esophoria, exophoria, etc.

This unfortunate confusion needs only to be mentioned in order to be appreciated.

From the foregoing we find, therefore:

1st. There is often some difference in the strength of the prism which we use.

2d. Confusion arises in part from lack of uniformity in the manner of using prisms to test, the static condition—the so-called muscular balance or,

3d. From lack of uniformity in using them to test the dynamic condition.

4th. From the existence of different terms to express the same muscular conditions.

In view of so much confusion it seems desirable for this Society to take some formal action which might tend ultimately to the appointment of an international committee, whose duty it would be to report some simple plan which would ensure greater uniformity in methods of examining the muscles and perhaps also agree on some terms for describing the results obtained by our measurements.

By thus taking a single step toward uniformity in methods and terms we might hope to advance to a better understanding of the diagnosis and treatment of muscular anomalies.

The following resolution was adopted by the American Ophthalmological society when in executive session:

"Whereas, A uniform method or methods of making tests of muscular anomalies would enable ophthalmologists to understand each other better, would tend to give more uniform results of examination and probably better results of treatment; therefore be it

"Resolved: That this Society appoint a committee, who shall endeavor to have attention called to the subject in National Societies of Ophthalmology, and in the Section of Ophthalmology of the International Medical Congress in Madrid next April, in order that if deemed advisable, a plan for such uniformity of method may be formulated and acted upon by the International Ophthalmological Congress in Switzerland in 1904.

The committee consisted of Doctors Howe of Buffalo, Risley of Philadelphia, and Williams of Boston.

The trustees of Jefferson Medical College, Philadelphia, have decided not to fill the chair of ophthalmology at that institution. The position will be made a clinical one, Dr. Howard F. Hansell retaining his clinical professorship and giving the didactic instruction. Dr. Wm. F. Sweet and Dr. Clarence A. Veasey remain as chiefs of clinic and instructors, each taking charge of the outpatient department for half of the year.

CORNEAL TATTOOING.

BY J. L. BORSCH, M. D.,
ANCIEN CHEF DE CLINIQUE DU PROF. DE WECKER, PARIS.
PHILADELPHIA.

Despite the fact that much has been published concerning corneal tattooing, most articles, even those in text books, convey an incorrect idea of the method of performing this most excellent and useful operation, and, in many cases, the description is erroneous. Many authors make no distinction between optical and cosmetic tattooing, some even contending that the operation is unreliable and should be employed with great caution.

Galen is said to have been the first to tattoo the cornea for disguising opacities. He is said to have cauterized the opacity and then applied a paste composed of powder of gall-nut, pomegranate bark and a salt of copper. This, according to Panas, was the origin of tattooing. Anagostakis states that the ancient Greeks had a method of tattooing the eye.

However that may be, the credit of introducing the operation and first describing it in a scientific manner, thus giving it a permanent place in ophthalmology, reverts to De Wecker, for it was he that first practised the modern operation in 1869.

The idea was suggested by Abadie when a student of De Wecker in 1869; (1) de Wecker promptly tried the experiment, first with a simple cataract needle, which was successful, and afterwards with a grooved needle.

Having discovered how little pain and reaction the operation caused, he soon frequently repeated it and the results of these operations were published by his chief of clinic, Dr. Pomier, in the *Union Med.*, '70.

With reference to the technique of the operation, most writers advise rubbing some India ink and water into a thick paste and applying some of this on the cornea, then making a series of needle pricks with a bundle of from four to eight tattooing needles. This pricking process is to be continued until the opacity has disappeared.

Others, again, advise making a number of thrusts obliquely into the cornea with a bundle of needles, until the epithelium is completely destroyed, thus making a number of canals in the corneal substance for the reception of the ink, which is then rubbed in with the finger, after having asepticized the cornea and conjunctiva. The needling and rubbing are to be continued until the coloration leaves nothing to be desired. Inflammation and sympathetic inflammation are sometimes mentioned as sequels of this cosmetic operation.

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(1) de Wecker, *Chirurgie Oculaire,* Paris, 1879.

To disguise the unsightly deformity resulting from a marked corneal opacity requires the operator to be somewhat of an artist; for in order to tattoo an iris and pupil on a complete leucoma, one must proceed in the same manner as though intending to draw a pen picture.

No one in drawing such a picture would take from 4 to 8 pens and unite them in a bundle, but would select a single pen; so in tattooing one ordinary sharp needle should be used.

Again, in order to make a picture, no one would think of first smearing ink all over the paper and then endeavoring to draw the object with a pen devoid of ink; therefore, in tattooing a leucoma of the cornea, the opacity should not be covered with ink and the needle thrust blindly in through it, but a sharp needle should be placed in the holder and prepared in the following manner: First, dip it in a strong solution of formolor carbolic acid, then in alcohol, then in sterile water and finally rub it on a clean piece of carbonate of soda. The needle is now ready for use.

The coloring matter is made from the finest quality of Chinese ink in stick (preferably that made at the imperial manufactory at Pekin or Shang Hai). This is to be rubbed up with a solution of sublimate 1/5000 until a liquid, the consistence of which is a little thicker than ordinary black ink, is obtained. This solution may be prepared beforehand and kept in a glass stoppered bottle.

A small metal (silver) spatula from which to conveniently take the ink while tattooing, is of use. A speculum and a pair of conjunctival forceps, the teeth of which are replaced by a piece of hard rubber or shell can be used to fix the eye; the forceps and speculum may, however, be dispensed with and the eye steadied by the index and middle fingers, exerting a controlling pressure on the eyeball through the lids. As a precautionary measure, always have ready a small rat-tooth forceps and a pair of fine scissors with which to excise immediately any spot we may have accidentally made in the conjunctiva, but which we should take extreme care not to make.

A complete leucoma is tattooed as follows: The instruments, etc., being prepared, the conjunctiva is thoroughly douched with a solution of boracic acid (5. grammes to 250. grammes of water) and anesthetised with a one or two per cent solution of cocaine.

Let the patient look straight ahead (1) and make a needle point at the exact spot that is to correspond to the center of the pupil. Then dip the point of the prepared needle in the liquid Chinese ink and make a number of thrusts, in a circle, around the central guide point straight into the leucoma, until a uniformly black pupil is obtained, equal in size to that of the other eye in an ordinary light.

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(1) Any exi ting strabismus should first be corrected before the eye is tattooed.

This may be all that can be accomplished at one sitting, if the patient becomes nervous or bleeding is abundant.

Next the diameter of the iris in the sound eye is measured and guide points made on the leucoma to outline the new iris; then a circle, which is to represent the limbus, is tattooed around the pupil, care being taken not to make the points of the tattooing too near one another lest the limbus become too dark. One must be guided by the color of the iris of the sound eye; if it be gray or blue, the limbus is made light; if the sound eye be dark gray or brown, the limbus must be made heavier.

Imitate the striations of the iris of the sound eye by making needle thrusts obliquely into the leucoma, radiating from the pupil, stopping from time to time to observe the effect of the tattooing, which is best judged from a distance of about 75 centimeters.

The darker tint of the iris is obtained by making perpendicular thrusts with the needle between the striations; the more closely the needle pricks are grouped the darker will be the iris, and the more disseminated they are the lighter it will be. In this way the eye can be made to assume the color of the iris covered by the leucoma. In many cases it is impossible, except on closest scrutiny, to determine that the eye is tattooed and not natural. What a boon this is to a person whose living depends upon appearance, or to a young lady whose future happiness may depend upon the dissimulation of an unsightly spot on the eye.

A somewhat different course is pursued when a leucoma or a nebula is tattooed for optical purposes. In this case it is more the purpose to ameliorate the visual acuity than it is to obtain a cosmetic effect, for sometimes one has a slight nebula to deal with, which, while scarcely perceptible, causes a notable reduction in the vision.

This operation is of great benefit where the leucoma or nebula partially covers the pupillary field, thus causing a dispersion of the rays of light and an indistinct retinal image.

If the leucoma entirely covers the pupil, a sphyncterectomy is made opposite a clear space in the cornea, and the portion of the opacity that encroaches upon the new pupil is tattooed. Remarkable results follow this procedure, and de Wecker declares that he has seen the vision improved from 1/6 and 1/8 to 1/3, 2/3 and even to normal; in cases where an iridectomy had been performed for a corneal opacity, and where the gain in vision was very slight, tattooing the opacity in the manner to be described, produced astonishing improvement in the vision.

This operation is more delicate than the one known as cosmetic tattooing; the following is de Wecker's method of performing optical tattooing (3): "The operative field is illuminated with the aid of a photophore and a condensing lens can be used to better enable the operator to see the border of the opacity, which is carefully circumscribed by making a line of tattoo spots around the area to be tattooed; make a continuous line of points and then cover the outlined space with a series of fine tattoo points intensively and uniformly black.

"Care must be taken not to plunge the needle into the corneal tissue too obliquely to avoid raising the epithelium. Rubbing the tattooed portions must be avoided. The eye must be firmly fixed and the patient remain perfectly quiet in order to facilitate the accuracy of the operation."

Although no dressing is required, it is well to apply a pad of cotton covered with gauze and held in place with adhesive strips for 24 hours.

Contrary to the opinion of most authors, the existence of blood vessels in a leucoma is not a contraindication to tattooing corneal cicatrices; tattooing has a salutary effect on these cases, obliterating the vessels and disguising the unsightly deformity.

The incorporation of particles of Chinese ink in the cornea cannot be regarded in the same light as foreign bodies proper, for it is certain that these particles of ink do not irritate in the least.

During the years that the author was connected with the de Wecker clinic, where more tattooing was done than in any other clinic that he has seen, it has never been his lot to observe a single case of sympathetic or even severe inflammation following this operation, such as one or two authors have mentioned. It is true that the technique differed from that of other operators. For example, de Wecker, or Masselon, whose dexterity in tattooing is marvelous, has never been seen to rub India ink into the cornea with the finger, or to completely destroy the epithelium of this membrane.

A little care must be exercised in the choice of cases for tattooing; for example, de Wecker advises to tattoo as little as possible eyes that are prone to glaucoma, that have adherent leucoma and are ectasic, but even these may be tattooed if caution is observed.

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(3) Le Tatouage Optique, De Wecker, *Annales d'Oculist*, 1896.

Many a patient who is wearing an artificial eye could have retained his natural one and not been a slave to a prothesis (which is so prejudicial in many ways) if the possibilities of tattooing were more generally known. Many eyes that are now rendered useless by corneal opacities could be made useful by a sphincterectomy and proper tattooing.

NOTES FROM ABROAD.

BY C. F. CLARKE, M. D.,
COLUMBUS, OHIO.

In a large proportion of his cases of cataract S. Mark Dufour, of Lausanne, Switzerland, makes the downward section; and in spite of the fact that I had always considered it unscientific, I must confess that the beautiful result I saw in his hospital in various stages of progress and the ultimate results convinced me that I have certainly overestimated the disadvantages of this method, which he states he prefers whenever for any reason he finds it difficult to turn the eye downward. The healing was perfect in every case which I had an opportunity to observe.

He also did, in my presence, an operation for iridectomy in a case in which the anterior chamber was almost obliterated, using a knife like a gum lance for the first incision, which he completed with small, blunt pointed knives. Though somewhat complicated, the operation was quite a success.

Jequiritol.—Prepared by Merck, of Darmstadt, in varying strengths, which are carefully graduated and marked 1, 2, 3 and 4, with a serum for neutralizing its ill effects, if excessive, seems to have been given a fair trial in only two or three of the clinics I have visited and both in Birnheimer's and in Fuchs' clinic it was deemed a remedy of great value, being resorted to in cases of pannus and other forms of corneal opacity which had not yet become permanent but which often fail to yield to the usual treatment.

In Fuch's clinic I saw one case in particular of strumous keratitis in which most marked improvement had followed its use.

Airol.—Biernheimer reports most excellent results from the use of airol, introduced by D. Römer, of Basle, as an antiseptic dressing and local application in those cases in which nitrate of silver would be used. He applied it to corneal ulcers and in dressing wounds of the lids very much as iodoform is often used.

In *parenchymatous keratitis*, iodine in strong solution, applied to the surface of the cornea, was reported to have yielded excellent results. This was in one of the most famous clinics in Europe, and one realizes what radical differences exist in the methods of various high authorities when he discovers that in such a clinic the use of hot fomentations is never resorted to. How a remedy which seems so essential to me, and, I believe, to most ophthalmic surgeons, can be entirely dispensed with in a large and most celebrated clinic I am at a loss to explain.

In *persistent conjunctivitis* I found a number of men who resort to systematic syringing of the lachrymal sac and in recurring corneal ulcers, phlyctenular or of other character. Dufour even goes so far as to slit the canaliculus and syringe, notwithstanding the fact that no positive evidence of the presence of dacryocystitis is discovered. He tells me that by this means he sometimes succeeds in curing most obstinate cases of persistent or recurrent ulceration of the cornea.

Restoration of the Lower Lid by transplanting a piece of the external ear, according to the method of Böttinger, has been practiced several times in Fuchs' clinic and I had the pleasure of seeing one such operation performed by his assistant. In two former cases they had obtained very good results, and there seemed every reason to expect a good result in the case I observed, though when I came away it was too early to judge of the final outcome.

In brief it consisted in the transfer of a portion of the cartilage of the ear with one skin surface as a substitute for the inferior tarsal cartilage and inferior palpebral conjunctiva, the outer, or cutaneous surface of the newly formed lid being taken from lower central portion of the forehead over the base of the nose by a twisted pedicle.

The operation does not seem to be applicable to the upped lid, but in the case to which I refer, appeared to afford an excellent substitute for a lower lid lost by epithelioma.

Operative Methods and After Treatment of Cataract vary greatly in different clinics, and it was largely with a view to studying these methods and their results that I undertook my pilgrimage. I feel that I have been amply repaid as I have seen excellent results following the most various methods; and, while I fully realize that a continuous study of a long series of cases is quite necessary for a full understanding of the merits of any given method as compared with others, one may obtain many valuable ideas and suggestions by actual observation of the methods of others in the operating room and in after treatment.

Opinions differ greatly as to the choice between simple and combined extraction, but the larger number of those whom I saw on the continent prefer the simple extraction when it is practicable, and a number are quite insistent in its favor.

The broad conjunctival flap I find is almost universally employed, both by the advocates of simple and combined extraction, and, while I have obtained excellent results by avoiding a flap of conjunctiva and consider it a somewhat troublesome feature on account of the hemorrhage, I am convinced that displacement of the edges of the wound with its consequent delayed healing, astigmatism, and danger of prolapse is less to be feared when a good flap is made. I am quite sure that less care is required in the management of the cases after operation by this method.

The method of dealing with the anterior capsule differs greatly with different operators, but I found quite a large number using the sharp toothed forceps and removing the central portion, or in some instances where an iridectomy is performed, taking away as large a portion as is practicable. This latter method seems quite popular in England and it is claimed to greatly reduce the number of cases requiring secondary operation.

In only a few instances did I find operators employing the method I have preferred, namely cutting a quadrangular plaque in the anterior capsule with the cystotome and removing it, if practicable, by irrigation. In fact, I have yet to find an advocate of irrigation of the anterior chamber for the removal of cortex. Indeed, a considerable number seem to pay little attention to cortex and depend upon absorption.

The opening of the unoperated eye within a few hours, or at most a few days, after operation is so common as to almost be the rule, and, while a great variety of methods of after dressing seem to yield good results, I saw none that seemed so effective as Professor Snellen's.

In the enormous clinic in Utrecht, conducted by the elder and younger Professor Snellen, simple extraction is the rule, and during the last two years there has been only one prolapse of the iris after extraction and that was in a case in which an iridectomy had been performed. This, when it is considered that the unoperated eye is opened within a few hours after operation, is an excellent showing, and I am inclined to attribute it to the method of dressing and the care exercised in the after treatment.

The ocular fossa is packed with a number (five, six, or more) of small pledgets of absorbent cotton saturated with 1-5,000 bichloride of mercury or boracic acid solution and over this is laid a thin patch of protective rubber which is held in position by three narrow strips of rubber plaster from the brow obliquely to the cheek. On this is laid one of Snellen's aluminum shields which is held in position by two broad strips of rubber plaster.

For a few hours a bandage is also placed over the fellow eye. This dressing is renewed once or, in many instances, twice a day, and it was astonishing to see how free from irritation, injection and secretion these eyes were.

A similar dressing, but without the packing with bichloride, absorbent cotton was used in large number of cases seen in one of the Vienna hospitals, but in this case the amount of secretion along the edges of the lids was considerable and the eyes were often injected and somewhat irritable.

SEVERAL CASES OF UNUSUAL EYE DISEASES.

BY J. HERBERT CLAIBORNE, M. D.,

NEW YORK.

Case I. A negro preacher, of 39 years, was first seen by Dr. Alter, house surgeon of the New Amsterdam Eye and Ear Hospital. His case was diagnosed as one of acute catarrhal conjunctivitis of the right eye. Subsequently he was seen by one of the visiting surgeons, and this diagnosis was corroborated. After several applications of nitrate of silver, it was observed that the secretion increased in quantity and thickness. The case was regarded as suspicious, and the patient admitted having gonorrhœa. On the third or fourth day there was found a hazy, anæsthetic cornea, increased tension, together with a dilated pupil; there was also pain. I saw the case in this condition, recognized the severe character of the conjunctivitis, diagnosed the complication of acute glaucoma and ordered hot applications. I saw the patient again that night at eleven o'clock. At that time the cornea was totally hazy, almost pure milk-white, the tension being + 2; there was slight chemosis, the upper lids were very slightly swollen, and the secretion was fairly profuse, thick and yellowish. I then diagnosed gonorrhœal conjunctivitis complicated by glaucoma and prescribed the use of eserine sulphate together with hot applications. Up to the time of my seeing him he had had ice applications. On the following morning the status was about the same. I sent the patient to the hospital, put him to bed and contemplated performing an iridectomy. In a few hours, however, the cornea became still more hazy, the tension grew less and there was less pain, although the secretion remained about the same. The lids were no longer swollen and the chemosis had departed, though the bulber conjunctiva remained very red. The secretion was examined by Dr. Bennet S. Beach several times, but no gonococci were found. That night I continued the use of hot applications, but on the following morning changed them to cold ones and ordered applications of bichloride of mercury, 1-8,000, being at that time convinced that the diagnosis, "gonorrhœal conjunctivitis" was correct, notwithstanding the microscopical examination. I decided this upon the character of the secretion and upon the rapid infiltration of the cornea. On the following morning the cornea ruptured and sloughed away, almost in its entirety, leaving the iris considerably exposed. Throughout the entire course of the disease the left eye had been slightly affected, in-so-far as redness of the conjunctiva was concerned. In this eye, however, there had been no secretion worthy of mention. As soon as the right eye was lost, the cornea of the left commenced to be hazy and the conjunctiva slightly chemotic. At the same time the secretion thickened and became more abundant. The patient, becoming disgusted with my treatment, left the hospital for the Manhattan Eye and Ear Hospital.

Case II. Florid, extraordinarily healthy man, of 65 years of age, was sent to Dr. Pooley at the New Amsterdam Eye and Ear Hospital by Dr. Mittendorf. The left eye was the one involved. There was a constant purulent, but not profuse, ropy discharge from that eye, accompanied with moderate swelling of the lids, great chemosis, a cloudy cornea, dilated pupil and shallow anterior chamber. There was a crescentic arc of infiltration and loss of substance upward on the cornea. The tension was +. The patient was put to bed and a solution of bichloride, 1-5,000, with ice applications, was ordered. Eserine was employed to combat the tension; there was some pain, though it was not excessive. This case was recognized as being similar to the preceding one described, and was diagnosed as probable gonorrhœa. At this time the right eye was perfectly clear. Two days afterwards the right eye became red and there was a slight ropy discharge, less thick and less profuse than on the left side. I ordered bichloride solution alone for that eye. The left eye was now somewhat improved, the lids being less swollen, but the chemosis was about the same, although it became a trifle more excessive just over the region of the external rectus. The tension was less, the cornea was clear at the center, but more cloudy at the periphery, and ulceration was spreading along the sclero-corneal margin.

On September 15, two days after the last observation, the bichloride was changed to boracic acid, the condition in each eye remaining about the same, excepting the discharge, which was less in the left eye.

September 16, in the right or good eye, the cornea was clear, but the eye was fiery red; the discharge was lessening. In the left eye the center of the cornea was clear, but the ulceration was increasing at the periphery, the infiltration in this region becoming much more dense and the chemosis persisting as before.

September 30, four days after the last observation, in consultation with Dr. Pooley, the cold applications were changed to hot ones every six hours.

October 1 there was less chemosis in the left eye and there was a large and deep ulcer on the temporal side of the cornea, the center being fairly clear. The eserine was stopped.

October 5. Cornea becoming bulbous, but no pain, and other symptoms about *in statu quo.*

October 6. Prolapse of Descemet's membrane through the ulcer below with the iris lying against it.

October 18. The patient was discharged after the cornea had perforated and sloughed, with prolapse of the iris in the aperture; the cornea also became highly staphylomatous; the chemosis remained in a moderate degree. There was no discharge. The eye was very red and totally blind. The right eye recovered entirely.

Case III. An old woman, of dirty habits, 40 years of age, came to the New Amsterdam Eye and Ear Hospital on September 4, with the following history: She said her right eye had been sore all the summer; that she was induced to obtain advice, however, on account of the condition of her left. The status in that eye was as follows: There was great chemosis, especially below, the cornea was small, shrunken and greyish-yellow. There was no discharge, the lids were not red or swollen; the eye was totally blind. There was decided chronic thickening of the conjunctiva of both lids, but there was no sign of induration or brawn. This eye had commenced to get sore three weeks before she came to the Hospital. She described it as extremely painful and said the light hurt her. While under observation it went on to complete phthisis bulbi. Her right eye commenced to be seriously involved several days after the left one had first been observed. As stated, there was an apparent fair amount of conjunctivitis in right eye when she first came to the hospital. Status of the right eye at this time was as follows: Moderate chemosis, with no discharge, cornea clear, pupil round and reacts well to light. Lids red, but not swollen, intense conjunctivitis.

On September 7, three days after she was first observed and two days after the right eye commenced to be seriously involved, the status was about the same as described above. From this time on, however, all these symptoms increased in severity, the chemosis becoming greater and encroaching fairly on the inner side of the cornea; there was also greater fear of light and the cornea became more and more cloudy. There was, however, no discharge and but little pain. After this time the patient involuntarily rolled the eye upward when one approached her, to such an extent that it became practically impossible by any species of manipulation to again thoroughly examine the cornea. But after the lapse of several weeks, it was possible to discover that complete phthisis bulbi had occurred.

Case IV. J. R., 50 years of ago, a waiter in a restaurant; a sufferer from chronic recurrent mild rheumatism. From time to time since October, 1900, he has appeared at the New Amsterdam Eye and Ear Hospital, with inflamed eyes, of which the following transcript from the records of the hospital gives a fair description as a type of his most severe attacks. Admitted to the hospital on October 4, 1901; his eyes were in the following condition: Both eyes very red, circumcorneal injection, chemosis, photophobia, lachrymation, and pain, particularly on pressure upward and inward on the ball. In this condition he was put to bed, atropine was used, hot applications, and 5 grs. of calomel was administered internally. The chemosis commenced to increase in the left eye, while in the right eye it commenced to diminish. Up to this time, the lids had remained unswollen. On the following day, however, the left lids became so swollen that they could be separated only with great difficulty and paraphimosis occurred on manipulation. There was also a fair amount of exophthalmos. All these symptoms were made worse by cold applications. After changing them to hot applications, the chemosis commenced to diminish. In fact, from this time, all the symptoms began to disappear, and the patient was discharged on October 25, three weeks after his admission to the hospital, with the eyes almost normal.

It is with some hesitancy that I attempt to describe unusual cases in the presence of this company. Yet I feel justified from the standpoint of my own experience, in describing the preceding cases as unusual.

I regret I have not the bacteriological history of each of them, but after all two of them alone I think were entitled to that species of investigation. The secretion in the case of the negro preacher was examined for the presence of the gonococcus several times, yet it was not found, though he admitted having a urethral discharge. I have myself frequently noticed that in gonorrhœal conjunctivitis in which there is not the classical profuse discharge, that the gonococcus can be found only after repeated attempts and when the secretion is taken from the hidden folds of the conjunctiva. Bearing this in mind, I entertained no doubt at the termination of my care of the case that it was one of gonorrhœal infection of the eye. As stated, the patient was taken to the Manhattan Eye and Ear Hospital and went into the service of Dr. Emerson for treatment of his left eye. On the records of the hospital the diagnosis of purulent conjunctivitis stands.

Concerning the second case, that of the florid old gentleman, I felt so certain of my diagnosis at first that I omitted to have the secretion examined. I regret this, of course, and it becomes me to properly state the fact. I did not waver in my opinion on this point until some time afterward. I came to entertain a doubt about my correctness through the suggestion of Dr. Pooley.

The case of the old woman, I feel sure, is to be classed with the two preceding cases.

In two of these three cases both eyes were destroyed; in the other, one eye.

At this time I can only entertain the idea that they were all three cases of purulent choroiditis, in which, of course, the entire structure of the eyes was subsequently involved. I believe that the choroidal character of them was instituted from the beginning and that it was not due to infection from ulceration of the cornea. It was not possible to find out by inquiry whether there was any pus foci elsewhere. There was no reason to assume it except in the case of the negro preacher, who confessed to a gonorrhœa. I did not convince myself of the fact in this case. I did not think it worth while. I cannot regard these cases as metastatic in origin and I am hence compelled to regard them as cases of idiopathic purulent choroiditis commencing in the anterior choroidal tract and terminating in destruction of the globe by a mild panophthalmitis. They are unique in my experience.

The last case, that of the waiter who for the last two years has had recurrent attacks in each eye or both of chemosis, pain, swelling of the lids, etc., I regard as totally unique. The iris, to all outward appearances, has been clear and uninvolved, though there has been pain on pressure upward and inward at times.

He has recovered rapidly each time by the use of atropine, hot water, salicylate of soda coupled at times with rest in bed. He has chronic fleeting articular rheumatism. Beyond that no other ailment. I believe his case is one of mild, acute, recurrent, anterior choroiditis. The fundus, with the exception of a very mild haziness, has been found clear. I believe this haziness to have been due to mild serous infiltration of the anterior vitreous. Subsequent to his most severe attack my colleague, Dr. E. B. Coburn, discovered a very slight choroidal change at the macula of the left eye. I did not see this until it was pointed out to me, but I believe it was an old affair and had no bearing upon the symptoms I have described. Certainly it was very slight and had escaped the notice of Dr. Pooley and myself. While I think it is not quite correct to place this case in the same category with the other three, I yet believe they are much the same in nature. In short, I believe them (all four) to be choroidal in character. The last one differs from the others only in degree.

39 W. 36th St.

Dr. James Bordley, Jr., has been appointed professor of ophthalmology and otology in the Woman's Medical College of Baltimore.

A. Terson in *Journal des Practiciens.*—While it is now known that *ophthalmic herpes zoster* occurs, it is rare. It is a nervous affection and is noted in persons who are not in good health. Terson observes 5 cases out of 1527 patients seen in 1901. In the treatment there are 3 indications, to calm the pain, to prevent ocular complications and to treat the general condition. He formerly advised opening the larger vesicles and covering them with an ointment of cocaine and lanoline. Now he uses *dionine,* which stops all pain and prevents eye-ball disease. Should keratitis or iritis occur, an iodoform salve and atropine are needed. In some cases internal tarsorrhaphy may become necessary. Tuberculosis, heart disease, diabetes, alcoholism and other general diseases need appropriate treatment. Mercury acts well in some cases. [M. O.].—*Philadelphia Medical Journal.*

THE
OPHTHALMIC RECORD

A MONTHLY REVIEW OF THE PROGRESS
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BRITISH MEDICAL ASSOCIATION.

MEETING AT MANCHESTER, JULY AND AUGUST, 1902.

Owing to illness the president, Dr. David Little, was prevented from being present and his place was taken by the senior vice-president, Dr. Glascott.

In his opening address the chairman expressed his great regret that Dr. Little was unable to be present. He sketched the history of the Eye Hospital and the progress of ophthalmology in the city of Manchester.

Mr. Marcus Gunn opened the discussion on *Functional (hysterical) Derangements of the Eye.* He described the various conditions met with, and with regard to diagnosis the chief difficulty was to distinguish between this condition and malingering. He thought in cases where neutralized glasses brought the vision up these were really assumed blindness. Complete double amaurosis is exceedingly rare.. He only knew of one case and this was really feigned and was entirely cured by suggestion.

With regard to pupil reflexes he put great stress on their direct and indirect action. He described a case of extreme blindness due to functional conditions and also some due to injury. The cases fall into two groups: (1) Idiopathic, mostly seen in women and children. (2) Traumatic, seen entirely in adults and in both sexes.

Mr. Holmes Spicer asked if it were a fact that when in a functional case the helecoidal field was obtained with one eye, whether the other eye, if it had been covered up, would show the field as small as on the other side. He also discussed the pupil reactions.

Mr. McGillivray said he was sure that in Dundee such cases were very much less common than in England.

Dr. Hill Griffith thought the great difficulty was to know whether to class the patient as a culprit or as a patient and to know how many of the symptoms were feigned and how many were real. He thought it was much easier to distinguish between functional and organic than between functional and feigned symptoms.

Mr. Doyne described a case following injury in which it turned out that most of the patients' eye symptoms were due to tobacco.

Dr. Glascott said that these cases were fairly common in England and he described a case in which there appeared to be no perception of light but which was cured by suggestion.

Dr. Karl Grossman (Liverpool) described a case of *Ivory Exostosis of the Orbit*, upon which he had performed many operations and had had the patient under his observation during the last eighteen years. He also exhibited the patient. The eye had first been much displaced and the cornea had subsequently sloughed. An enormous amount of bone had from time to time been removed and the nasal cavity had been invaded. Dr. Grossman had at last done some plastic operations which not only filled in the large gap but also wonderfully improved the patient's appearance.

Major M. T. Yarr, R. A. M. C., read a paper on *Indirect Gunshot Injuries of the Eye.* In his first case a Mauser bullet passed through the face just below, but outside the orbit. This caused blindness with extensive fundus changes in the eye, while the other remained normal. In the second case there was a contusion of the left eyebrow causd by an accidentally exploded cartridge. This caused impairment of sight, slight ptosis with contraction of the visual field, some patches of atrophy of the choroid and disturbance of pigment at the macula. The interest in these cases lay in the fact that in neither case was the orbit wounded, although such extensive damage was done to the eyes.

Mr. Bishop Harman described a case he had seen in South Africa in which a detachment of the retina in one eye and the development of slight myopia in the other occurred as the result of the explosion of a shell close to the patient.

Mr. Lee had seen a somewhat similar injury followed by retinitis proliferans, and in another a large intraocular hemorrhage followed a bullet wound of the orbit.

Dr. J. A. Menzies described some cases of *Detachment of the Corneal Epithelium.* They usually follow an injury and are due to defective attachment of the epithelium to Bowman's Membrane. The condition is one which causes considerable pain, for which some authors have advocated cocaine. The preventive treatment consists of keeping the lids quiet after an injury and for the treatment of the condition the loose epithelium should be removed and the surface scraped.

Mr. Devereux Marshall thought the use of cocaine was to be deprecated, as it would still further tend to cause disintegration of the epithelium.

Mr. Simeon Snell thought peritomy would do as much good and would be less likely to damage the cornea than scraping.

Mr. Holmes Spicer thought these cases were of herpetic origin and that the lids should be kept from rubbing the cornea by bandaging. In one intractable case he had done iridectomy and the patient had had no recurrence since.

Mr. Doyne said he had tried almost everything for this troublesome condition except peritomy. He strongly disapproved of cocaine. He suggested that it was possibly due to a defect in the endothelium of the anterior chamber, which allowed fluid to pass through. He had cured one troublesome case with iridectomy, and in another relapse after several years the galvano-cautery sufficed to cure.

Mr. McGillivray (Dundee) mentioned one case which never relapsed so long as the patient was taking thyroid extract, in spite of the fact she had not myxœdema. As soon as the treatment was left off a relapse took place. He thought that cocaine was only harmful if used in watery solutions; if used as ointment drying did not take place and the epithelium remained uninjured.

Mr. Bishop Harman described a somewhat similar condition, which affects the epithelium of fishes.

Mr. C. G. Lee (Liverpool) described four cases of *Monocular Neuritis,* which had recently come under his care. The first was a girl aged 13. When seen there was a completely choked disc on the right side with vision reduced to shadows. There was no general condition to account for it, but under treatment with mercury and iodide, etc., the condition subsided and the vision improved to $\frac{6}{9}$ & jvi with some pallor of the disc. The second was a man aged 39 who, while at sea three weeks previously, had had severe pain in the right temple with failure of the sight of the right eye. The vision was reduced to $\frac{6}{18}$ and there was well marked neuritis. Leeches, mercury and iodide were used, when the condition subsided and the vision improved to $\frac{6}{9}$.

The third case was a lady aged 24, who was run down and highly nervous. There had been headache and the vision of the right eye was reduced to counting fingers. Under similar treatment this also subsided and the vision improved to $\frac{6}{12}$.

The fourth case was that of a boy of 18 with identical symptoms. He likewise improved.

In none of these cases was there either syphilis, influenza, renal, nor cardiac disease. No exposure to noxious vapors, no excess of tobacco or alcohol nor anything else to account for it. The origin is most obscure.

Dr. Hill Griffith thought they were likely to be retro-ocular in origin.

Mr. Doyne thought that the color fields would assist in determining their nature. In all he had seen there was a central scotoma.

Mr. Lee said that the fields were not such as to suggest a scotoma being present.

Mr. Simeon Snell (Sheffield) described a method he had lately been practicing for *Uniting the Cut Tendons After Enucleation of the Eyeball* for the purpose of obtaining a better stump for an artificial eye to rest upon. It consisted of bringing the cut tendons forward and suturing them together.

Mr. Ernest Clarke also described another modification for producing the same effect. This was especially intended for the subsequent wearing of Snellen's artificial eyes.

Dr. Edward Roberts also described a method he was in the habit of using.

Dr. Karl Grossmann was not in favor of the introduction of glass globes and he thought that Mr. Snell's method was simple and effective.

Mr. Sandford (Cork) opened the discussion on *Sclero-Keratitis.* He discussed the etiology of the disease and also its treatment. He thought that the hypodermic injection of pilocarpin was most useful. His experience of sub-conjunctival injections was not good, and even when good results had been obtained he did not think they were better than the results obtained by other methods, while the severe reaction which frequently came on afterwards was a distinct disadvantage. He advocated local rest, sanitary methods, myotics and salicylates.

Mr. Maddox described a case in which he had found peritomy and yellow ointment had done the most good. Dry heat he felt to be of the greatest advantage and for the purpose of applying it he had devised the following method, which was simple, effective and cheap.

A circular piece of flannel was cut large enough to well cover the eye and on this was sewn some fine wire which could be attached to an accumulator. A current sufficient to well heat the wire could be passed through it.

Dr. Hill Griffith thought that Mr. Sandford took too hopeful a view of these intractable cases. He had not seen any good result in really bad cases from drugs or other treatment, not even from peritomy.

Mr. Devereux Marshall thought that locally atropine was by far the most useful drug and he did not at all agree with the use of myotics except in very rare cases. He thought as the ciliary body and the neighboring parts were all more or less affected, the pupil should be kept dilated for fear of getting it blocked.

Mr. Wray said that the mainstay in these cases was atropine. The drops should not be used unless preceded by cocaine and the best method was to use cocaine drops and follow it with ½ per cent atropine ointment.

Mr. Watson Griffin had treated cases successfully with atropine and cocaine ointment followed by yellow ointment, with mercury and iodide of potassium internally. After a relapse the deep injection was kept down by adrenalin drops which, however, were contraindicated if cyclitis were present.

Mr. Bishop Harman described a case which had been treated with adrenalin which, although it made the eye look better, yet it caused pain and diminished vision, in spite of the fact that it did not increase the tension.

Dr. Hern said he felt bound to add some words of encouragement to the very pessimistic view taken by most of the speakers. The majority of cases certainly get well under treatment, in spite of a few very troublesome ones. It is most important to treat the general constitutional condition underlying the local disease. The two things which he considers the most important are the operation of peritomy and the inunction of mercury.

Dr. Clegg had seen the disease chiefly in women, and more especially at the menstrual periods. He has found yellow ointment in strength of from 1 to 6 per cent the most useful.

Dr. Glascott thought that the refraction ought in all cases to be corrected, besides the giving of mercury internally and the application of atropine locally.

Professor J. Widmark then demonstrated *Martin Janson's Siderophone* for the detection of pieces of steel and iron within the eye. It consists of an electro-magnet to which a telephone is attached. When brought near a piece of iron an alteration is produced in the electric current and this produces a sound in the telephone which can easily be heard.

Mr. C. Wray then read a paper on *Civilization and Eyesight,* in which he discussed the ways in which myopia was produced and the relative frequency with which it would be likely to occur.

Professor J. Widmark read a paper on the *Etiology of Myopia.* He said that there were three chief theories to account for the development of myopia: Accommodation, convergence and perception of the retina. The first theory has been almost given up, but the convergence theory still has a good many adherents. This, however, will not account for all the cases. Corneal opacities and astigmatism seem to exert a considerable influence in its development.

If nebulæ appear in childhood it favors myopia, and this is because the vision is reduced and near vision is rendered more difficult. If they occur in one eye only it is the sound eye which becomes the myopic one. So, also, if astigmatism be present it is the least astigmatic eye which becomes chiefly affected. This is due to the extra work done by the sound eye. That convergence can have no great effect is proved by the fact that one eye may develop myopia while the other diverges and the two eyes are never used together.

He described several cases illustrating this. The theory that it is causd by strain on the optic nerves in convergence cannot be correct, for if so the position of the posterior staphyloma would be up and out instead of down and out. It cannot be due to convergence or accommodation for people with one eye develop it.

The chief reason is because the sight is limited and the effort to see small objects causes hyperæmia at the posterior part of the eye and hence favors the production of myopia. Accumulated products of fatigue may also have an effect and may cause the tissues to yield. If this is so myopia is to be prevented by helping the retina in any possible way and thus it is important to correct the vision by glasses which render the sight good.

Colonel E. F. Drake-Brockman, I. M. S., said that when, in 1869, he was appointed to the Ophthalmic Hospital in Madras, myopia among the native patients was very small, but as time went on and educational standards became higher the number of myopes considerably increased and he came to the conclusion that the chief cause in the production of myopia was overwork of the eyes.

Dr. Hill Griffith doubted very much if hypermetropia ever became less as years went by, and certainly he had never seen myopia supervene. One author warns us against fully correcting hypermetropes for fear of hindering the development of the eye. One would have thought that myopia would be more than usually common in India, where for centuries education was greatly in advance of that of Europe.

Mr. Doyne was astonished to hear what Mr. Hill Griffith had said, for he thought it every day experience to see hypermetropia diminish or pass into myopia.

Mr. Story doubted if myopia had much increased in recent times. In former ages people were nothing like so particular over their eyesight as they are in the present day, and took but little notice of the error if not very great.

Dr. McGillivray had seen some slight cases of hypermetropia pass into myopia. In one case which he had frequently examined under atropine he had watched a change of four diopters take place.

Dr. Hern was of opinion that low degrees of hypermetropia alter but little, but high degrees do certainly tend to get less. He never remembered a case of hypermetropia which was diagnosed as such under atropine ever becoming myopic under the same conditions.

Dr. David McKeown described a case of *Congenitally Displaced Lenses* which he needled. In the left eye the lens became opaque and partially absorbed so that the patient could see through the clear part of the pupil, while in the other eye the lens entirely absorbed.

He also described a case of *Persistent Ulcer of the Cornea* in a lady 60 years of age which followed influenza. The ulcer was slow and involved the whole cornea and resisted everything in the way of treatment, even the galvano-cautery. Very slowly it has healed.

Dr. James Taylor opened the discussion on *The Rarer Forms of Optic Atrophy.* He excluded from the discussion those cases which followed neuritis, the result of cerebral growth and the primary atrophy of tabes and general paralysis, which latter was made very clear by the post mortem investigations of Dr. Mott. It was also to be recognized that optic atrophy was not an uncommon result from the neuritis occurring in Bright's Disease, glaucoma and following injuries of the optic nerve.

He referred first to the large class of cases associated with disseminated sclerosis which he believed were in most cases the result of neuritis, usually retrobulbar. In some cases a central scotoma was present. The pallor of the disc is different from that in tabetic cases and the vessels are not so small, while he had never known the blindness to be complete; indeed it was often surprising to observe the very fair amount of vision which existed with extreme pallor of the disc. He next referred to toxic cases and the atrophy which frequently accompanies it. He referred to the small quantities of tobacco which may produce it if sugar be present in the urine. He next alluded to cases of optic atrophy not preceded by neuritis occurring as the result of pressure at the chiasma and to the frequency with which such cases come under observation with one eye already blind while the other has lost the temporal half of the field. He described other cases the origin of which was obscure.

Mr. Holmes Spicer said that in atrophy following disseminated sclerosis the loss of sight was central with little impairment of the field. He regarded these cases as due to an island of sclerosis somewhere in the optic nerve behind the eyeball. He did not think that these cases as a rule progressed to total loss of the fields. He thought that diabetics were specially liable to be affected with amblyopia from tobacco, and a small quantity would produce symptoms in these people. There was also great difficulty in getting truthful histories from smokers. Many of the isolated cases of which Dr. Taylor had spoken belonged probably to the hereditary group.

Dr. Emrys-Jones had published a case of atrophy associated with the dropping of fluid from the nose in large quantities. He agreed with Mr. Spicer in considering tobacco an important factor in the production of atrophy.

Dr. C. O. Hawthorne said that from a clinical point of view optic atrophy was not a fact but an inference. The appearance of the disc alone was insufficient to make a diagnosis by.

Dr. Bronner thought that many cases ascribed to tobacco were in reality due to other causes, such as commencing central retinal and choroidal changes, which yielded to treatment. It was important in all cases to take the fields for color as well as for white.

Dr. Newton Pitt and Dr. Lodge discussed the paper and related cases.

Mr. J. Herbert Parsons called attention to the tendency to put the lesion in all these cases in the optic nerve itself. In some of them it is probably in the retina. The evidence in favor of this in toxic cases is increasing rapidly. Attention was specially directed to the work of Birch-Hirschfeld on the subject.

Dr. Hill Griffith said he had seen numerous cases of amblyopia occurring in women who smoked and in them a much smaller quantity of tobacco was sufficient to produce it than in the case of men. He had no satisfactory explanation to give of those cases of atrophy occurring after profuse hemorrhage.

Remarks were also made by Dr. Clegg, Mr. Harman and Dr. McGillivray.

Dr. Sam Lodge read a paper on a *New Vasomotor Disturbance of the Eye.* This was evidenced by oedema of the eyelids, episcleritis, dilated vessels, and enlarged thyroid. He described numerous cases and showed photographs of the patients, some of whom appeared to be suffering from exophthalmic goitre.

Mr. J. Herbert Parsons read a paper and gave a lantern demonstration on *Experimental Lesions of the Retina.* These injuries were produced in the monkey by means of a Graefe knife passed into the vitreous for the purpose of tracing the degeneration in the optic nerves and tracts. Lesions mostly 1 to 3 mm. were made in various parts of the eye. After a time the eyes were removed and examined. In all cases processes of repair were proceeding and the wound was seen to be healing through the agency of episcleral tissue and choroid. When bleeding had taken place into the vitreous from a large retinal vein, strands of embryonic tissue spread out in a fan shaped manner (retinitis proliferans). Muller's fibres apparently take no part in the process of repair. Peripheral to the injury the ganglion cells were diminished and centrally there was but little evidence of degeneration of the retina.

In optic nerves and brains treated with Busch-Marci method the following results were obtained:

(1) The degenerated fibers retain their relative position throughout the nerve.

(2) Invariably some degenerated fibers are seen in the nerve of the opposite side, these being probably collateral.

(3) Fibers from the macular region pass from the temporal side of the nerve anteriorly and towards the center as they pass back.

(4) In all cases there is degeneration in both optic tracts, probably collateral fibers of the injured side.

(5) The fibers spread out as they pass back in the tracts and are distributed over the whole area posteriorly. Most go to the external geniculate body, some to the optic thalamus and a few to the superior corpus quadrigeminum.

Dr. Bronner read notes on 40 cases of *Extraction of the Lens in*

High Myopia. He said there was still some uncertainty as to what cases should be operated upon. Most surgeons refuse to operate with less than 16D of myopia; there are, however, exceptions. For example, when glasses cause pain and give only moderate vision, and in children where the myopia is progressive.

If one eye is myopic with symptoms of amaurosis while the other is emmetropic he said he would certainly operate. In children he preferred to operate on both eyes, while in adults only in one as a rule. The risk, though appreciable, is small. Sepsis should not occur, but after operation glaucoma sometimes does supervene and should be carefully watched for. Sometimes thick vitreous opacities occur and it is doubtful if detachment of the retina is in any way affected by it. Central choroidal changes are no drawback. There is usually a distinct increase in the fields after the operation. The operation he preferred was needling first, followed by evacuation a few days later.

Mr. Devereux Marshall thought it a very risky thing to operate on one eye when the other was sound, and he could not see what benefit was to be expected by so doing.

Mr. Hill Griffith had seen glaucoma come on many days after operation.

Mr. Holmes Spicer had had gratifying results, but he rather thought it more satisfactory to operate on one eye only, as the patients seem to get on better when only one is attempted.

Mr. Wray said he had been discouraged by the strong opinion expressed at the Ophthalmological Society some years ago when the matter was discussed. In a case of posterior lenticonus he had removed the lens with excellent result. He had seen the tension of these eyes improve after operation.

C. Devereux Marshall.

OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM.

Thursday, July 4, 1902.

Charles Higgins, F. R. C. S., vice-president, in the chair.

A Case of Detachment of the Retina in which Complete Recovery Took Place.—The chairman read notes of this case which occurred in a lady aged 36 who had been under his care for myopia of high degree since 1892. In 1899 she nearly lost the sight of the left eye from detachment of the retina.

In May, 1901, she first noticed an obscuration of the upper part of field in the right eye. There was a doubtful history of injury some weeks before. The lower part of the retina was found detached. She was treated for nearly a month by lying down, with mercurial inunction and vapor baths; some improvement took place. A fortnight later the sight suddenly returned one afternoon while lying down and it was as good as it had been before the detachment occurred. Ophthalmoscopically some vitreous opacities were seen but no detachment. On January 23, 1902, nearly nine months later, the vision was $\frac{6}{24}$ and j i and the field was almost normal, and there was no sign of detachment.

Notes on a Case of Retinal Detachment after Cataract Extraction.—Mr. Ernest Cartwright read this paper. The patient was a man aged 72, whose right eye had been operated on for cataract in 1899, and this was subsequently needled twice. In April, 1900, the vision was, with correction, $\frac{6}{6}$ & j i.

On January 7, 1901, he was again seen and he stated that two weeks ago the right eye had suddenly failed and everything looked tinted red. The sight had got gradually worse since, so that he could now only count fingers at 6″. The left eye had a complete cataract with good projection. His heart and urine were normal.

He was kept in bed and a scleral puncture was made above, behind the detachment, and some clear, watery fluid exuded. He was discharged on Jan. 25 without improvement.

He was seen from time to time with gradual improvement until in September, 1901, when he could see $\frac{6}{18}$ and J 2. The field was nearly normal. The left cataract was then extracted and with this he could see $\frac{6}{6}$ and J i, while the other improved to $\frac{6}{12}$ and J i.

Mr. Maclehose mentioned a case he had seen, due to a blow, which had recovered.

Mr. Hartridge stated that he had never seen a case which had got well.

Mr. Jessop had never seen a case of complete recovery, though he had seen several in which temporary improvement had taken place.

Mr. Devereux Marshall also stated that he had seen more than one apparent cure, but that all those he had been able to trace had subsequently recurred.

Mr. Sydney Stephenson described a method of operating on cases of convergent squint by cutting the tendon in such a manner that the cut edges could be applied together and the muscle could be lengthened to the required degree. He had operated on six cases with gratifying results.

The following card specimens were shown:

Mr. J. H. Parsons: (1) *Gumma of Ciliary Body.* (2) *Metastatic Carcinoma of the Chorioid.* (3) *Annular Sarcoma of the Ciliary Body.*

Mr. Doyne: *Rupture of the Eyeball, with Prolapse of Iris and Without Dislocation of the Lens.*

C. Devereux Marshall.

July 9, 1902.

COLORADO OPHTHALMOLOGICAL SOCIETY.

Special meeting held at Pueblo June 26th, 1902, during the regular meeting of the Colorado State Medical Society.

Dr. E. M. Marbourg, of Pueblo, in the chair.

Subject for discussion, *The Use of the Electro-Magnet for the Removal of Steel from the Eye.*

Dr. Melville Black, of Denver, read the following paper: *The Removal of Steel from the Vitreous and Lens with the Hirschberg Magnet.*

Case 1.—F. D., age 34; miner; March 12, 1895. At 11 a. m. yesterday while pounding a steel drill with a sledge hammer a piece of steel from the drill struck him in left eye. Can see objects when held close and about a foot above the eye.

Condition.—Small puncture of upper lid of left eye at about its middle, and about 1-6 inch from its free margin. A corresponding puncture of sclera ⅛ inch above cornea.

Operation.—The scleral wound was enlarged and with lips of wound held open with forceps by an assistant, the tip of a Hirschberg magnet was introduced several times into the depths of the vitreous, but without results. He still had eccentric vision when he left, and with ophthalmoscope the ocular interior was seen full of floating membrane with no reflex above.

Case 2.—Don S., miner; age 20; Jan. 5, 1898. Four days ago while holding a broken drill on an anvil while it was being pounded with a sledge hammer something struck him in the right eye. On the following day vision was reduced to light perception.

Condition.—Central perforating wound of right cornea. Iris not injured. Lens opaque and swollen. Pupil dilated very slightly in superior temporal direction. Anterior chamber very shallow. Deep circumcorneal injection.

Operation.—Chloroform. Small section above at corneal margin. Iridectomy. Removed lens with fenestrated spoon. Introduced tip of Hirschberg's magnet into vitreous twice, the last time being rewarded with a contact click, and the exit of a chip of steel weighing 1 gr. The ultimate recovery gave him a full eye with fair cosmetic appearance. Vision, shadows.

Case 3.—T. L., age 26; miner; Jan. 5th, 1899. Five months ago while holding drill that his partner was sledging, a chip of steel flew from either the drill or hammer, striking him in the left eye, causing immediate visual disturbance. The eye is still painful and red.

Condition.—General redness of globe, with deep ciliary congestion. Linear scar through center of cornea. Pupil central and circular, iris discolored. Lens opaque, with a black linear spot in it below. Vision is light perception, with poor projection.

Operation.—Small section above at corneal margin. Iridectomy. Introduction of tip of Hirschberg's magnet to black spot in lens, but it did not take hold. Extraction of lens with fenestrated spoon, but it did not contain the foreign body. The tip of magnet was now passed into vitreous several times in all directions, but no steel was found. After the removal of the eye the piece of steel was found in a mass of exudate in the inferior ciliary region.

Case 4.—H. W., age 26; machinist; March 8th, 1900. Yesterday afternoon while using a pneumatic drill the point not being fastened well in the machine, he gave it a tap with a hammer to set it, when a piece of something struck him in left eye. One of the workmen got out something he thought to be a particle of steel.

Condition.—Small corneal wound in lower nasal quadrant about 2 mm. long. The iris looks almost normal, but pupil dilated irregularly and with great difficulty. The lens has a large spot of opacity in line with corneal wound. The eye was so photophobic that a view of its interior was very difficult, but as near as could be made out there is a hemorrhage to the temporal side of the optic nerve. The eye had rapidly advanced into purulent ophthalmitis. Enucleation was at once advised. Another ophthalmologist who gave a favorable prognosis then enucleated the eye three days later in the presence of panophthalmitis.

Case 5.—F. N., age 19; machinist; June 16, 1900. While punching square holes in sheet iron with a machine punch, the punch turned and, not engaging in the die properly, a sliver of steel was broken from the punch, striking him in left eye.

Condition.—Penetrating wound of cornea, iris, and lens in their lower temporal quadrants. The ophthalmoscope showed beginning opacity of lens, an air bubble in the vitreous at about its center, and below the disc there was a large hemorrhage. The steel was not visible. He was kept under observation for two days, and when, at the expiration of this time there were no evidences of infection, a linear cataract extraction was performed, and the tip of a Hirschberg magnet introduced deep into vitreous below in region of optic nerve. The contact of the steel was felt as it flew to the magnet, and was successfully removed. Weight, 1 gr. The eye made an uneventful recovery. Some corticle remained when last seen and vision was found to be 1/20.

Case 6.—Age 20; stone quarryman; Sept. 17th, 1900. Three months ago was annoyed by a spot before left eye, and in a few days after vision was gone. A few days before the spot appeared something struck this eye while quarrying.

Condition.—Very minute opacity in the lower temporal quadrant of the cornea. Lens opaque. Small dark spot to lower temporal side of its center, looks like a very small particle of metal.

Operation.—Small section above at corneal margin. Introduced tip of Hirschberg magnet to spot in lens; it adhered to magnet and was withdrawn from eye. It proved to be a particle of steel with a sharp edge and not larger than a strawberry seed. The lens was then extracted by pressure and counter-pressure and syringing. Vision, 5/9 W. + 10.00 ⊂⊃ + 1.50 ax. 180°.

Case 7.—H. A. F., age 26; plumber; Nov. 17th, 1900. The case was unique in that a small piece of steel remained in the lens from Nov 5th, 1900, until March 20th, 1901, before the lens became totally opaque. On Nov. 5th, 1900, while breaking a hole through a brick wall with chisel and hammer something hit him in right eye. Twelve days after the accident he consulted me, stating that for three days he was conscious of a slight blur of O. D., but that the eye in every other respect felt normal.

Condition.—Small opacity of cornea just below its center. Small nick in iris in its pupillary margin below. Wound of lens running from point just below the center of ant. cap. through lens in temporal direction to a small piece of bright metal about the size of a pin head, situated near its temporal margin. There was also an independent opacity in region of center of post. cap. spreading toward the metal. Atropine was instilled and the case kept under observation. His vision of O. D. was 5/40. About Jan. 22nd was the first apparent change in the appearance of the lens, and his vision was found to be lowered to 3/40. The lens was showing signs of general opacity, but it was three months later before the lens was totally opaque and the piece of metal no longer visible. His vision with O. D. was shadows. Accordingly in November, 1901, just a year after the accident, a small section was made above in corneal margin, ruptured capsule as usual and then a Graefe knife passed into the lens to a point supposed to be near the piece of metal, then the tip of a Hirschberg magnet introduced into the lens through this opening, and engaging the piece of steel at the first attempt, removed it. The soft lens matter was removed by syringing. The healing was uneventful. The cosmetic result perfect. Vision one month later was 5/12 W. + 11.00 ○ + 0.75 ax. 10.

Case 8.—J. W. McH., age 41; miner; Dec. 13th, 1900. Two days ago while opening a box with a chisel and hammer something struck him in O. D. The next day he noticed that the vision was poor in that eye, and that it was becoming inflamed, but up to present time it has not been painful.

Condition.—Conjunctiva chemotic and inflamed. Anterior chamber contains a line of pus. Cornea perforated (small wound) to to temporal side of center. Iris torn on nasal side. Lens totally opaque.

Operation.—Chloroform. Small section below at corneal margin. Washed out anterior chamber with normal salt solution. Iridectomy, capsulotomy, washed out soft lens matter. Introduced tip of Hirschberg magnet into vitreous five times and finally brought out a piece of steel the size of a pin head from the temporal side of vitreous. This was an eye in the beginning stage of purulent ophthalmitis and a bad prognosis was given, but strange to say the operation arrested the inflammatory process and the healing was comparatively rapid. In fifteen days the eye was almost free from redness, with the exception of ciliary congestion. The pupil and colomba filled with exudate that was contracting. Vision, fingers at three feet.

Conclusions.—Dr. Black is in favor of attempting extraction from the depths of the eye of such metals as are attracted by the magnet, unless the process of inflammation has passed into a purulent ophthalmitis, and even then if it has not advanced too far. This statement may not hold good if the case is not seen early, or the injury be of such a nature as to render it, from its penetrating importance, too likely to cause sympathetic disturbance. Where the lens is injured it seems I advisable to begin with linear lens extraction with iridectomy, then resort to the use of the magnet through the route opened. At times the use of the magnet in the lens before its extraction is advisable, or the lens may be removed in its capsule with a fenestrated spoon. The latter procedure has two distinct advantages, that if the foreign body is in the lens we are sure to get it, and that there is no soft cortical left behind to organize with inflammatory exudate into a tough and often unsightly pupillary membrane. Case 8 illustrates the possibility of saving an eye in the early stage of purulent ophthalmitis. He attributes the favorable turn of this case to the careful syringing of the anterior chamber before attacking the iris, lens and vitreous. The medico-legal side of these cases must receive our consideration. A foreign body penetrating the eye may carry infection through its entire track, that may in spite of the removal of the foreign body lead to destruction of the eye. In view of this it is well to surround one's self with every safeguard if the extraction of the foreign body is attempted before inflammatory symptoms have had time to become pronounced. He has several times felt that he could not depend upon certain patients to properly understand their condition, nor to appreciate my efforts, and in consequence have deemed it prudent to wait forty-eight hours to see how great evidences of infection would be present.

Dr. E. R. Neeper, of Colorado Springs, reported the case of S. G., aged 37, laborer on railroad section. He was seen 20 hours after the injury. The pupil of left eye was found to be greatly contracted, lens slightly cloudy and possibly somewhat swollen, cornea punctured near nasal periphery, anterior chamber full. He was having no pain. After some difficulty obtained complete dilatation of pupil and easily located a cylindrical piece of steel ¾ mm. by 2 mm. completely imbedded in the lens substance occupying an anterio-posterior position at junction of middle and outer third of the lens body. As a counter influence to its transmission posteriorly he advised the use of a strong horseshoe magnet at corneal surface five minutes each hour, and continued the atropine. This treatment was persisted in for two days, when he was surprised to note that the piece of steel was becoming more prominent anteriorly. On the following day it was protruding far enough from the anterior lens surface that, after making corneal incision, Dr. Neeper easily removed the piece of steel with forceps. The eye made an uneventful recovery. At his last examination, two months later, there remained but a small local opacity of the lens with vision of 20/30.

Dr. Geo. F. Libby, of Colorado Springs, reported two cases of steel in the eye. The first case was that of a man aged 27, seen Sept. 10th, 1899, 8 p. m. Four hours ago a chip of steel from a chisel head that had been struck with a hammer flew into right eye. It was visible to the naked eye as it lay imbedded in lower and outer quadrant of iris partially protruding into the anterior chamber. It looked to be about the size of a pin head. No hemorrhage from iris or cloudiness of cornea or aqueous. Linear scar across lower quadrant of cornea, terminating in small opening at the entrance of the foreign body. No pain, but general ciliary and conjunctival injection. Photophobia and lachrymation. V=20/100. Sept. 11th, 8 a. m. cocainized eye and used eserine, made corneal incision with keratome through outer and lower quadrant of cornea near limbus, and removed a bit of steel the size of a flaxseed, using an iridectomy forceps which had previously been magnetized. A small part of the surrounding iris was incised, but not enough to show after resulting hemorrhage was absorbed. Healing was prompt and satisfactory. Vision was 40/100 in that eye with —4.50 Cyl. ax. 90 three weeks later.

Case 2.—Age 45; January 1st, 1900, 11 a. m. Twenty-four hours ago, while using a hammer and cold chisel, a chip of metal flew, cutting the edge of the righ eyelid slightly, penetrating the globe at the corneo-scleral margin, and passing through the iris. Pain came on later and was soon severe. The cornea is now steamy, conjunctiva œdematous, and photophobia and lachrymation and pain are severe. Vision is reduced to questionable perception of light. At 1 p. m. etherized and removed bit of steel at second attempt with an electro-magnet, through an incision 2 or 3 mm. long and just below external rectus. Jan. 2nd. Restless night. Pain in stomach as well as eye, lid and conjunctiva oedematous with pus in anterior chamber. Jan. 4th. Cornea clearer. Stomach better. Less pain. Jan. 5th. Cornea steamy and rough. A general infection of the eye is evident. Pain is now severe. The eye was accordingly enucleated, as it was found to be infected throughout, a tract of purulent exudate extending from corneal wound back into vitreous. After the first operation the eye was treated by cold packs, atropine, and iodoform powder, quinine and calomel given internally.

Dr. E. M. Marbourg of Pueblo reported three cases of steel in the eye. The first case he saw about three years ago with chip of steel three mm. long resting on the lens. It had passed through the cornea and iris. He made a corneal section and introduced magnet tip and removed an arrow shaped chip of steel. The eye recovered with 20/30 vision.

The second case was injured 36 hours before he saw the eye. A chip of steel had punctured the center of cornea, passing through the lens into vitreous; 48 hours later there was chemois and hypopion. He made a scleral incision below and as far back as possible, introduced magnet tip and withdrew a piece of steel, 4 mm. long and following it came a drop of pus. Inspection of anterior showed the hypopion gone. The eye did fairly well for a time, but phthisis bulbi finally destroyed it.

His third case came under his care about a month ago with the history of something striking him in the eye while working on brass with a chisel and hammer. There was a wound in corneal margin with the eye much injected. Pupil dilated irregularly. Patient would not permit operation. He went home, and returned in a few days with the eye greatly inflamed and painful. The core of a Hirschberg magnet applied to the eye did not elicit pain. The next day a black point was visible in the wound, the magnet adhered to it, but would not remove it. He took hold of it with a pair of forceps and aided by the use of a needle removed the foreign body, which proved to be a piece of steel that weighed a little over a grain. The eye is now quiet with traumatic cataract and exclusion of the pupil.

General Discussion.—Dr. Edward Jackson of Denver discussed *Points to be Aimed at in Magnet Extraction.* (1) The magnet must be strong enough. Many cases of failure have occurred through the employment of too weak a magnet. Large pieces of metal can be extracted with a small magnet. But while the resistance to the removal of a small piecee is less, the magnetic attraction diminishes still more rapidly. The strongest magnet is required to remove the smallest particles of steel. And it is by removal of small particles that the best results of magnetic extraction are obtained. (2) The tip of the magnet should not be introduced so far as to disturb the contents of the sclero-corneal coat. The magnet must be strong enough to draw to it the foreign body without approaching it closer than the opening in the eye-ball through which the extraction is accomplished. The dangers from disturbance of the vitreous by penetration with the magnet tip are well understood, although they may have been somewhat exaggerated. (3) The magnetic force should draw the foreign body directly towards the opening through which it is to make its exit. This is the case only when the magnet tip is brought to the opening. When the attraction is exerted toward a point some distance from the eye-ball, the foreign body is likely to be drawn to one side of the exit, and to become entangled in the tissues, doing additional injury while increasing the difficulty of the removal. (4) The path of exit should be as direct as possible. If this condition is met by extracting through the wound of entrance so much the better. But if the location of the foreign body is known to be such that a much shorter path of exit, away from important structures, can be obtained this should be chosen. (5) There should be a free opening for the exit of the foreign body. When the wound of entrance is used it should be enlarged, in all cases. The disadvantages of a slightly larger opening in the sclero-corneal coat are insignificant, compared with the dangers of brusing tissue, entanglement, or stripping of infective material from the particle removed. (6) The removal of infective material carried in by a foreign body is almost as important as the removal of the foreign body itself. To extract a particle of steel from the depth of the eye, and leave behind it a tract of infection, is to do an incomplete operation; and one that, often, will be of no practical benefit to the patient. Whenever it can be done the tissue in immediate contact with the foreign body should be drawn out with it and excised.

Dr. A. C. Friedmann of Colorado Springs said he had had no cases of steel in the eye in this country, that in the old country the magnet was used largely as a diagnostic agent. He was in favor of immediate operation.

Dr. J. A. Patterson of Colorado Springs said he had many times been impressed with the remarkable way in which the lens sometimes tolerated foreign bodies, especially steel.

Dr. Melville Black of Denver, in closing the discussion, said, that the ultimate recovery of the eye either from a cosmetic or a visual standpoint depended largely upon the extent of the injury and the infection carried in with the foreign body. If the latter was extensive and was not removed with the foreign body the eye would not only be without vision but would shrink and give a poor cosmetic result. He thought where the entrance of the foreign body was through the cornea and lens, that to proceed as for cataract extraction removed a large part of the infectious material. He realized, however, that this procedure did not always accomplish as much in this direction as was desired if the foreign body was lodged in the vitreous. He had wondered if we would ever be justified in attempting a radical replacement of the vitreous with normal salt solution where it was certain that the vitreous was so infected that shrinking of the eye would almost of necessity follow. Certainly nothing could be lost by the attempt. It was questionable if cosmetically anything could be gained. It was a procedure worth considering, however, in certain eyes so infected that phthisis would be the expected outcome.

MELVILLE BLACK, Secretary.

ACCOMPLISHMENTS OF THE BLIND.—It is fast becoming true that, to paraphrase an old saying, in the language of the blind there is no such word as impossible. There is in Philadelphia a blind newspaper dealer who without help conducts a successful business. (And there are good men who go out of their way to buy their papers of him!) But the veteran blind newsdealer, Marcellus Betz, has just died in New York from a fall while serving papers on his route. He lost his eyes in 1860. He was 71 years of age and had been selling papers since he was 8 years old. In Berkeley, Cal., there is a young woman of 18 who can do most anything that others do—except to see. She will be graduated next year at the usual age from the high school. Besides all the usual accomplishments of the blind she is a good musician, reading the raised notes for the blind; she is a good seamstress; she not only uses the typewriter for the blind, but the ordinary one, taking down rapidly from dictation; she plays whist with interest and skill, by means of pin pricks in the corners of the cards which she understands, touching each card as played by the others, and then promptly playing her own. She is an expert bicycle rider and has made her "century run." She rests her left hand in guiding on the right hand of her companion and guides the machine with her right hand. We have learned of a man blind, and like Laura Bridgman and Helen Keller, also deaf and dumb, who traveled alone all over the United States, lived a good and enjoyable life, supported himself and family—all by means of a most ingenious device, the letters of the alphabet tattooed plainly upon the palm and fingers of one hand. By pointing to these letters others soon learned to understand what he "said," and their answers were known to him by the spots or letters they touched upon his hand in reply. And we most fortunate ones bewail our difficulties.—*American Medicine.*

NEWS ITEMS.

PERSONALS AND ITEMS OF INTEREST SHOULD BE SENT TO
DR. BROWN PUSEY, 31 WASHINGTON ST., CHICAGO.

Trachoma Among Immigrants.—Nearly 100 cases of trachoma were found among the steerage passengers of the "La Gascogne," which arrived at Ellis Island Aug. 25. The only punishment that can be inflicted on the French line is to send the immigrants back at its expense.

ASSISTANCE FOR THE BLIND OF NEW YORK CITY.—During the past week the municipality distributed its annual donation through the Department of Charity. Each blind person who was declared worthy and needy received $50 in gold, nearly 1,000 persons being benefited.—*American Medicine.*

TACHIOLO IN OCULAR AFFECTIONS.—A. Benedetti (*Il Policlinico; Supplemento Settemanale*) presents the results of his experiments with the fluorid of silver, a salt discovered by Paterno in 1901 and to which the name tachiolo has been applied. He finds it useful as a collyrium, in solutions varying in strength from 1-1,000 to 1-100. Solutions of greater strength than the latter produce irritation. He finds instillation of this salt very useful in cases of catarrhal conjuctivitis, owing to its antiseptic potency and to its superiority over nitrate of silver. [C. S. D.]—*American Medicine.*

SUBCONJUNCTIVAL INJECTIONS OF CARBOLIC ACID IN GRANULAR CONJUNCTIVITIS.—Niémtchenkov (*La Semaine Médicale*), a Russian military surgeon, advises subconjuctival injections of a 5 per cent aqueous solution of carbolic acid solution in the treatment of trachoma. He uses about one-quarter of the contents of an ordinary Pravaz syringe, making an application at each angle of the everted lid. The patient is not given severe pain, the reaction is not extraordinary, no toxic symptoms are reported and no serious results have followed. Ordinarily one injection is necessary, but two or three may be given. An interval of five to seven days should elapse before injection of the second eye or repetition of the injections. Niémtchenkov has thus treated with great success 43 patients.—*American Medicine.*

Operations for Congenital Blindness.—Koenigsberg (*Scottish Medical and Surgical Journal*) reports three cases of congenital blindness from cataract in Russian peasants, and describes the educative visual exercises following operations. The ages were 16, 18 and 28 years, clearly showing how little such people are accustomed to seek medical advice. From his study of the cases he concludes that in our first application of the sense of sight we also make use of touch on a large scale to ascertain the general appearance and detailed outline of objects, etc., and it is after this only that we arrive at a correct understanding of these objects and remember them later. From his clinical observation alone he is satisfied that from the very first use of the eyes in vision objects are seen at once as they are, and not reversed as they are reflected on the retina.—*American Medicine.*

Electric Light Conjunctivitis.—Grimsdale (*Medical Press and Circular*) notes that this disease has received scant acknowledgment in literature. He reports several cases, with varying symptoms. The disease is more alarming than serious, and lasts only a few days. Cold compresses give the greatest relief. One of the cases reported shows that it is the ultraviolet rays and not the general illumination which produce the effect. Probably dark yellow glasses would act as a preventive to both this and snow blindness even better than the ordinary smoke tint. The conjunctivitis can hardly be from direct injury, otherwise we should not get the interval of quiescence after the immediate results have passed off before the acute symptoms come on. It must be due to a disturbance of the nervous system, especially the vascular centers, by direct stimulation of the afferent nerves, or the rays cause some chemic change in the conjuntiva whose products act as strong irritants, producing local inflammation. The former seems more probable. [H. M.]—*American Medicine.*

Crossed Eyes.—The cases of crossed eyes that can be treated successfully by glasses and stereoscopic training are, according to Colburn (Chicago Medical Recorder), those in which there are: "1. Clear media. 2. Typical development of the bony structures surrounding the eye. 3. Typical development of the orbital tissues. 4. Early correction of errors of refraction and the constant use of correcting glasses. 5. Systematic training of the muscles governing the movements of the eyes. 6. Co-operation of parents and attendants. In cases requiring operation for correction one or more of the following conditions may exist: In early life, atypic development of the muscles and check ligament or the bony walls of the orbits; paralysis, partial or complete, of one or more of the ocular muscles; shortening of one muscle and corresponding lengthening of its opposite from continued malposition; contracted connective tissue bands, the result of diseases or traumatism. As a secondary cause we may have corneal or lenticular opacities or disease of the fundus. In every case operative interference should be considered as the last resort. In my work I prefer the graduated or guarded tenotomy and advancement or shortening operation to the complete tenotomy."—*Jour. A. M. A.*

AMETROPIA IN KINDERGARTEN CHILDREN.—The eye of the little child is almost always hyperopic and astigmatic, and the ocular tissues are especially plastic and easily injured by near work such as is common in kindergarten schools. It therefore behooves all teachers of these schools and parents who send their children to them to see to it that the eyes of every child should be scientifically tested by an expert oculist. Dr. Newsholme of England has especially directed attention to the danger of injury to the eye at this time of life, but with many others he fails to point out the true remedy. It is not so much the postponement of attendance at school until later years, when the eye shall have supposably become more capable of resisting strain; this should be done, of course, if there were no other remedy. But there is another remedy, viz., spectacles, if needed; and with this remedy applied there is obviated all the disaster rightly described. The work of the ordinary kindergarten is not harmful to the eyes or health of a little child, providing that the eyes have been tested by a skilled refractionist. If the child of five needs glasses to prevent injury to the eyes and to the health, the chances are that at a later age the double injury will not be avoided except by glasses. All the nonsense about "bespectacled children" and a "beglassed nation" must be contemptuously put down. If the facts are as stated, pride and prejudice must have no voice in the matter.—*American Medicine.*

THE VISUAL POWERS OF PRIMITIVE SAVAGES.—Dr. W. H. R. Rivers contributes to vol. ii of the *Reports of the Cambridge Anthropological Expedition to Torres Straits* a lengthy series of observations upon the visual powers of uncivilized people. The greater part of his work was done in Murray Island, where the people had remained undisturbed in their primitive condition until within the last thirty years, and have subsequently been rendered, by the influence of missionaries, sufficiently tractable to understand the instructions given them for the performance of the requisite tests. Upon the question of physiological acuity of vision as distinguished from acquired powers of observations, Dr. Rivers' researches tend to show that though the typical savage may be superior to the normal European, his superiority is only slight. He quotes many instances which suggest that it is long-continued practice in closely attending to the minute details of extremely familiar surroundings rather than natural physiological superiority which enables the savage to surpass the ordinary European so marvelously in the recognition of distant objects. The most acute-sighted savage would, in the unfamiliar surroundings of a Highland moor, be a very poor match for the native gillie; and Dr. Rivers considers that we have no right to assume that the average European who has received the necessary special training could not develop an acuteness of vision equal to that of less civilized races. These remarks suggest an important application in the training of scouts for military purposes. If any slight superiority in the visual apparatus of the savage does exist, it has been suggested that it may be partly accounted for by a more delicate power of accommodation for long distances. The frequency in savage races of hypermetropia, where the mechanism of accommodation is always more or less in action, affords some corroboration of this view. Dr. Rivers has also found some evidence that irradiation is less marked in primitive races, and points out that this fact, if fully established, would also help to explain any superiority of visual acuity which might be present.—*British Medical Journal.*

THE
OPHTHALMIC RECORD
A MONTHLY REVIEW OF THE PROGRESS
OF OPHTHALMOLOGY.

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ORIGINAL ARTICLES.

ETIOLOGY AND TREATMENT OF GLAUCOMA.

BY PROF. DR. W. SCHOEN,
LEIPZIG, GERMANY.

(Written for THE OPHTHALMIC RECORD.)

There appeared in THE OPHTHALMIC RECORD, a paper concerning the fate of a renowned ophthalmologist affected with glaucoma, to whom it was decreed, "Physician cure thyself," which closes as follows: "As yet no one has brought us the solution of the problem." Nevertheless who would believe this from reading the standard works and monographs on ophthalmology? Glaucoma is everywhere looked upon as the result of an increase in the intra-ocular tension, and iridectomy as the infallible remedy.

Nothing interferes more with progress than an error which has received widespread acceptance. To doubt the existing order of things is heresy and subjects the doubter to ridicule.

Dr. Javal's case has shown that the treatment by iridectomy or sympathetectomy is based upon a wrong conception of the conditions. Both methods when applied to his case failed to give relief.

It is difficult to unlearn those things which we have been accustomed to regard as elemental facts.

Any opposition comes in the nature of a shock and is bitterly resented. Therefore we should be very careful not to impart supposition for dogma.

The common theory of glaucoma starts with the supposition of high tension in the affected eye. All the thought has been given to the cause and the relief of this tension.

The first to mention increased tension in the eyeball as one of the symptoms of glaucoma, seems to have been Plattner (Plattner: *Inst. Chirurg. Nat. Lipsia*, 1758—1309—VII—76). Afterward Albrecht von Graefe declared this symptom to be the cause of all the others in real glaucoma, excluding an *amblyopia cum excavatione* which he did not believe to be caused by increase of tension. However, when Donders asserted that the amblyopia must also be looked upon as glaucoma, von Graefe extended his theory to cover this form also. The adherents of this theory grant that in a very great number of cases no increase of tension has been observed. Some years ago the President of the American Ophthalmological Society stated that he was accustomed to diagnose glaucoma in the absence of increase of tension and that it was recognized by all that increase of tension was not a necessary symptom of glaucoma.

This fact is explained by the adherents of the tension theory on the ground that the examinations were made during the intervals of increased tension.

According to these data a definition of glaucoma simplex would read: Glaucoma simplex is a form of glaucoma in which the tension occurs always during the absence of the surgeon! If the patient could but live in the presence of his surgeon he would never suffer from an attack!

The theory was supposed to account for the cupping of the optic nerve. But as a matter of observation the deepest cuppings are frequently found in cases which show absolutely no increase of tension, and *vice versa*.

In the human body there are three mechanical forces which cause increase of tension, namely, inflammation, tumor and heart action. The first two may be dismissed at once, as glaucomatous eyes do not show any evidence of either. The interior of the eye is always exposed to blood pressure, but this theory has never accounted satisfactorily for the increase in tension. The real cause of the increased tension is the loss of support of the ciliary muscle and its tendons, thereby permitting the intra-ocular pressure to be exerted directly upon the sclera and the tension then becomes perceptible to the touch. (*Archiv. f. Ophthalmologie*, XXXIII—1—page 203 and XXXIV—3—pages 204 and 242. *Archiv. f. Anat. und Physiol.*, 1887, page 234.)

The anatomic changes which glaucomatous eyes have undergone are so extensive that there must have been precursory symptoms, since it is out of the question for such changes to take place over night.

The origin of iridectomy as a remedy for glaucoma is not clear. Evidence is lacking that the iris has anything to do with the tension of the eye, and if iridectomy is expected to relieve the glaucoma by lessening the tension, what effect would it have in glaucoma without increased tension? Microscopical research has indeed shown that the anatomic changes have been made worse by iridectomy. (Schoen, Functions-Krankheiten des Auges., Bd. I, page 254, and Bd. II, page 194, *Wiesbaden-Bergman,* 1893-1901).

Iridectomy was exploited as a sure preventive of blindness and it was predicted that the vision would not decrease beyond the amount present at the time of the operation. Of 300 glaucomatous eyes under my care, 45 had already been operated upon by others and all were completely blind, although every patient had been promised preservation of the existing visual acuity. Still the prejudice in favor of this procedure is so great that the surgeon who would dare omit it in his treatment of a case of glaucoma would run serious risk of censure for neglect of duty.

For the first twelve years of my work in ophthalmology I was a sincere adherent of this theory and applied it repeatedly, giving my patients the assurance that the vision which remained to them would be preserved. But Dr. Javal's two cases of glaucoma, which were iridectomized with perfect technique, became totally blind. These cases caused my first serious doubt of the efficacy of the procedure, but it was fully five years later before I finally succeeded in ridding myself of my prejudices in favor of the method.

What are the premonitory signs of glaucoma simplex and is the physiological excavation of the nerve-head really physiological? It has been shown by microscopic examination that forty eyes, which had been examined in the live subject and found to have the so-called physiological excavation, had really acquired it during the lifetime. (*Zur Aeteologie des Glaucoma, Archiv. f. Ophthalm.,* XXXI—4—1—1884.) This result was confirmed by statistical research and by the fact that new born children, with a few exceptions, do not exhibit excavation. (Die Accommodations-ueber-onnstrengengung und deren Folgen *Archiv. f. Ophthalm.,* XXXIII—1—195.) I was able to examine microscopically, fifteen eyes which I had previously examined in the living subject.

Besides the beginning of the excavation, I discovered anatomical changes in the ora serrata with degeneration of the ciliary muscle. (Schoen *l. c.*). The degeneration of the ciliary muscle I consider to be the missing link explaining glaucoma simplex. The result of these researches is not an agreeable one. There is absolutely no hope of curing a well-established case of glaucoma by operation or by any other means, although we may delay its progress when seen early.

It is quite easy to recognize the premonitory signs, not only of glaucoma simplex, but also of the other forms of glaucoma. Increase of tension must be relegated to the rank and file of glaucoma symptoms.

In 1884 I stated that 80 per cent of glaucomatous eyes were either hypermetropic or astigmatic; 13 per cent afflicted with insufficiency of the recti-interni and the remainder presbyopic, and I quoted many cases where the progress of glaucoma was checked by correcting these errors. Since then a number of cases have been reported by others, showing cures made by the same means.

Now, looking back over the histories of 300 cases of glaucoma afore mentioned, I repeat with conviction, that every eye can be guarded against glaucoma if it can be seen early enough by an ophthalmologist who is accustomed to observe the preliminary symptoms. When fully developed it is absolutely impossible to cure the disease by any known means or any method yet invented.

THE NEW SURGICAL TREATMENT OF GLAUCOMA.*

BY DR. HENRY LA MOTTE.

SALT LAKE CITY, UTAH.

Glaucoma is a disease of many varieties, but the essential condition of all forms is that of increased intra-ocular tension. To this condition can be referred all the symptoms of the numerous forms of the disease, but while the symptoms can be so explained, we have hitherto been unable to satisfactorily account for the reason for the increase of tension. The disease was regarded as hopeless as far as treatment was concerned and all cases were allowed to terminate in inevitable blindness until 1858, when Von Graefe discovered that in many cases iridectomy was a curative operation for some forms of glaucoma.

Knies and Weber attempted to explain the increase of tension by attributing it to an adhesion between the root of the iris and the posterior surface of the sclera (the existence of this condition we are able in many cases to demonstrate anatomically). They assume that this adhesion is produced by an adhesive inflammation taking place in the tissues lining the anterior chamber of the eye. Weber claims that in many cases the original seat of the swelling is in the ciliary processes. On account of this swelling the iris is pushed forward until its root is in contact with the posterior surface of the cornea, thus occluding the canal of Schlemm and the spaces of Fontana, the only outlet for the lymphatic fluids of the interior of the eye. The outlet being thus closed and the influx not diminished, the excess of fluid is retained in the eye, producing the increased tension and change in the shape of the organ.

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*Read before the Rocky Mountain Interstate Medical Society, Cheyenne, Wyo., September, 1902.

This otherwise reasonable explanation does not account for the shallowness of the anterior chamber, which, according to the theory just mentioned, would naturally, if that theory explained everything, be deeper. Priestly Smith believes that in connection with a retention of fluids in the eye there is an actual growth in the bulk of the lens. In this way he accounts for the shallowness of the anterior chamber, and this explanation is more plausible when it is remembered that glaucoma almost invariably attacks the eyes of the far sighted.

An explanation which seems to me worthy of some consideration, is one which regards the seat of the primary trouble in the nervous structures supplying motor and trophic fibers to the iris and ciliary body. In this connection I would like to call attention to the fact that in about forty cases of glaucoma which have come under my personal supervision the origin of the trouble in all but one case could be traced to a severe nervous shock, to chronic drug poisoning, or to the injudicious instillation of atropine; the latter cause being responsible for somewhat more than half of the cases.

Let us now consider the treatment of the disease under consideration: Miotics in many cases check the symptoms from which the patient with glaucoma suffers; but the effect of the drug in the class of cases which it most benefits—that is to say, in young, well nourished patients with acute inflammatory glaucoma—becomes lost from frequent use, and the patient's vision is gradually destroyed during repeated attacks of glaucoma only partially controlled by the diminishing effect of the pupil contractor. As a very learned ophthalmologist recently said to me: "Unfortunately eserine acts very nicely for a short time." In my practice I regard miotics as a temporary means of preventing further destruction of vision until I can gain the consent of my patient to an operation.

Until a few years ago the operation of iridectomy has been regarded as the only hope for the patient with any form of glaucoma. Professor Haab, of the University of Zurich, has recently tabulated the cases which have been operated on for glaucoma by iridectomy in his clinic, and the result shows a favorable action in about seventy per cent of the cases.

Hirschberg, of Berlin, published a similar account of the cases operated on by him and the results claimed are even better than those of Haab; but statistics are frequently misleading. From personal observation in Hirschberg's clinic I can say positively that he is inclined to keep one eye upon his statistics.

Then, too, we should not lose sight of the fact that we are not all Haabs, Hirschbergs and Pagenstechers. Hirschberg has for many years operated every day of his life except Sundays, and frequently upon as many as twenty patients in one day. This experience, combined with natural aptitude, has developed in him a wonderful dexterity which it is but reasonable to suppose would have a very marked effect upon the statistics of so delicate an operation as iridectomy for glaucoma. I very much question whether any operator in the United States can show any such results from his operations as Hirschberg claims. Certainly no statistics from private practice, and this the real test, will show anything approaching it.

Fuchs says, "Favorable as is the action of iridectomy on glaucoma, we ought not to conceal the fact that in many cases which have remained for years apparently cured, blindness nevertheless ultimately develops."

A very dangerous accident during the performance of iridectomy for glaucoma, which occurs more frequently, I am convinced, than we are led to suppose from reports of cases published in the medical journals, is that of hemorrhage from the choroid. In twenty-seven operations of this description I have had this accident happen twice, and I can imagine nothing which is more calculated to ruin an operator's nerve than this self same condition of profuse bleeding from the deep structures of the eye, following upon the sudden reduction of intra-ocular tension.

Findlay, of Havana, in a recently published article tabulating the results of one hundred operations, describes this accident as occurring five times. Those who may have seen this accident can readily understand why the statistics of this accident fail to get into print.

Another accident which I am convinced is not so uncommon during the performance of iridectomy for glaucoma is that of injuring the lens during the performance of the operation. This accident has never happened to me, but I have always dreaded it, and I am sure it is one which is liable to happen to even the most careful of operators. I mention these accidents, not to show that iridectomy is an improper operation, but to show that it is an operation attended with unusual difficulty and many dangers.

I am firmly convinced that in any case of glaucoma of long standing, which has caused an adhesion of the posterior surface of the cornea and the anterior surface of the iris (thus producing anatomical occlusion of the filtration angle), the operation of iridectomy is not only justifiable but imperatively indicated.

In 1897 Jonnesco, of Bucharest, announced that he had operated in several cases of glaucoma by resection of the superior cervical ganglion of the sympathetic nerve, and that the operations were followed by remarkably favorable results. This operation has since been done in about thirty cases in this country. Many of these cases, in my opinion, were unsuitable for the operation, and in such unsuitable cases little good was done, but in no case so far reported in this country has any harm followed the operation. Dr. Black, of Denver, in a paper read before this society last year, states that he believes that the action of eserine upon the pupil forms a valuable guide as to the indication for this operation. I should go even farther and say that every case of glaucoma in which the adhesion previously referred to has not taken place, is a suitable case for this operation.

Within the past six months two such cases have presented themselves in my practice and have had this operation done; in the first case upon one side, and in the second case on both sides. All three operations were performed by Dr. H. D. Niles, of Salt Lake City.

Case 1. L. M., age twenty-seven, Private Company K, Eighteenth United States Infantry, was admitted to the hospital at Fort Douglas, Utah, on Dec. 23d. His condition was as follows: Both pupils widely dilated, conjunctiva deeply congested, cornea steamy so that no clear view of the fundus could be obtained. He complained of intense pain in the eyes and in the temples. It seemed to me at the time that the condition of both eyes was practically alike. I made a tentative diagnosis of acute inflammatory glaucoma, and I prescribed a one-fourth per cent solution of eserine to be instilled in each eye three times a day. Two days later the condition of the eye was much improved, the pupils contracted and the cornea sufficiently clear to enable a view of the fundus oculi to be obtained. There was no change in the condition of the nerve heads such as would warrant a positive diagnosis of glaucoma.

The eserine was continued about a week and then stopped. Three days after its removal a second acute attack began, which was more pronounced in the right eye, and I was now able to make out during the attack a condition of cupping of the right nerve head, and demonstrate to my satisfaction an increase of tension in the right eye. I now made a positive diagnosis of glaucoma, and recommended the operation of removing the superior cervical ganglion of the sympathetic nerve. The post surgeon, however, disapproved of this operation and so the operation was declined. The use of eserine was continued until a third attack, about the 1st of March, occurred during the administration of this drug.

The objection to sympathectomy still existing on the part of the patient and surgeon I decided to do iridectomy on the right eye, which operation was done March 2d. At this time the pupil was moderately dilated, the conjuctiva deeply congested, vision reduced to counting fingers at six feet. An incision was made in the sclera one millimeter from the sclero-corneal junction, the length of the incision about one-fourth of the circumference of the eye.

The subsequent operation was greatly impeded and embarrassed by a profuse hemorrhage, which at the time of the operation I greatly feared came from the deep structures of the eye, but which I am now convinced was from the iris. On account of the embarrassment caused by the bleeding the coloboma was not as large as I should have wished, but with this exception the operation was satisfactory, the wound healing nicely with but little reaction. No improvement in vision, however, was manifested for three weeks after the operation, when the operation of sympathectomy was done upon the opposite side. Immediately after the iridectomy, however, the left eye became acutely congested, the pupil remained widely dilated in spite of the use of eserine, and by the end of the third week from the operation of iridectomy, vision in both eyes was reduced to the perception of light.

On March 25th permission was granted to do sympathectomy on the left side. The operation was carefully and skilfully done; and following the section of the sympathetic nerve, contraction of the pupil on the same side occurred almost instantaneously. The night following the operation the patient slept well, and the next day announced that he was perfectly free from pain for the first time in nearly three months. From this time until April 30th his condition steadily improved, not only in the left eye, but in the one which had been previously operated on by iridectomy.

On April 25th vision in the right eye equalled 20/70 and in the left 20/50, the vision in both eyes being slightly improved by cylinders correcting a low grade of astigmatism. His accommodation was apparently normal in the left eye and nearly so in the right. The only paralytic symptom demonstrable was a slight ptosis of the left eye lid. The patient at this time expressed himself as completely satisfied with his condition, and grateful for what had been done.

On July 10th the patient's condition was even better, his vision being 20/20 in the left eye and 20/40 in the right. He was able to read No. 1 Jaeger at six inches. I have not seen him since that date.

In this case, whether or not the indication for sympathectomy was absolute before the operation for iridectomy, it certainly was after that operation, as there was nothing in the operation itself to cause the profuse bleeding from the iris. Certainly after having done that first operation nothing would have induced me to attempt a similar operation on the other side.

Case 2. Mrs. V., age 38, was first seen by me on April 2d, at which time I made a diagnosis of simple progressive glaucoma. The history of the case obtained at that time was as follows:

In September, 1899, following a most severe nervous shock, she had an attack of intense pain in both eyes, accompanied by marked protrusion of the eyeballs. Her vision was much reduced at this time, and she remained in this condition for one or two months, after which she improved slowly and had but little trouble with her eyes for a year. Then she had an acute attack of pain in her right eye which lasted about two weeks. During this attack she noticed halos about lights. These symptoms disappeared until about March 1st of the present year, when she had slight pain in both eyes and noticed a certain amount of dimness of vision.

When I first saw her the left pupil was considerably enlarged, the cornea was steamy, and there was a decided increase of tension. Under eserine the pupil contracted, but this drug caused her so much pain that the strength of the solution had to be reduced until it no longer had effect upon the pupil. Pilocarpine was then substituted for it. This drug was not so disagreeable to the patient, but on the other hand its control of the disease was very slight. Combinations of miotics were tried, as were combinations of them with cocaine.

During the three weeks of experimentation with miotics her accommodation greatly improved. Her acuity of vision remained about the same as it was when I first saw her: that is to say, 20/40 in the left eye and 20/30 in the right. Correcting lenses for near and distant vision gave her much comfort.

She was anxious from the first for any operation which would relieve her from the distress accompanying her disease; and so, as the choice was left to me, after having thoroughly explained to the patient the dangers and disadvantages, as well as the advantages of both operations, sympathectomy was decided upon, and as in the previous operation, was done by Dr. Niles.

The first operation was done on May 1st on the left side. The immediate result of the operation was most happy as far as the relief of her distressing symptoms was concerned. However, within about ten days after the operation a peculiar state of anaesthesia of the skin of the face and neck, from the median line extending back to the line of the incision, developed. As in the other case there was a slight ptosis. The area of anaesthesia has gradually receded till at the present time it is an area of about three inches long and two inches in width at the side of the face and neck, involving a portion of the ear.

On May 30th she had an attack of pain in the right eye after having had several sleepless nights. The pupil was dilated, there was loss of accommodation, and visual acuity was reduced to 20/200, The condition slightly improved under miotics but on June 25th the condition was much worse. For about a week prior to July 9th vision in the right eye was reduced to little more than perception of light.

On July 9th sympathectomy was done on the right side. The wound healed nicely and the ocular conditions improved rapidly. At the present time the condition of this patient is eminently satisfactory. Her vision, with correcting lenses, is 20/20 in each eye. She reads Jaeger No. 2 at eight inches with her distance glass, which shows that her accommodation is almost normal, and best of all, she has no pain whatever connected with her eyes. Her field of vision is slightly restricted on the temporal sides, and slightly from above, the latter probably due to the ptosis.

When I compare the histories of these three operations with the history of the case of Dr. Emile Javal, as described by himself, where he made use of the best ophthalmic talent in Europe; where, in spite of operation after operation his condition became steadily worse; of his years of torment, ending first in absolute blindness of one eye and finally of a condition in the other but slightly better, with only perception of light during his good days—I cannot help believing that we have in sympathectomy a much better and more reliable operation than iridectomy, sclerotomy, or any other operation upon the ball of the eye.

With incomplete access to the medical literature on the subject of this operation, the statistics which I will now give are perhaps not quite accurate, but they are very nearly so. In all, 110 cases have been reported. In one case death resulted from the operation. In this operation, however, there was an attempt to remove all three cervical ganglia. In 12 cases no effect was noticed upon the tension of the eye or upon the vision. In 15 cases tension became normal or much reduced and the eye remained free from pain, but the vision continued steadily to decline. In 72 cases the disease seemed to have been checked and there was entire relief from pain up until the time the cases had been reported.

Only about a dozen cases have been reported in which the operation was performed during the first stages of the disease, and all these cases show favorable results as to vision and comfort, and this, in my opinion, is the crux of the whole question. In order to get a thoroughly satisfactory result from this operation I believe it is necessary that the operation be performed early, as soon as a diagnosis of glaucoma can be certainly made. There is no question but that the leaders in ophthalmic surgery have been and still are opposed to this operation, but if this operation results in the relief of pain in 75 per cent of cases; if it restores to sight and happiness even so small a percentage as ten or twelve, it seems to me this operation does not need the indorsement of even men best known in ophthalmology.

There has just been published in London a Manual of Military Ophthalmology by M. T. Yarr, major in the British army.

At the International Congress for the Amelioration of the Lot of the Blind, which was held recently in Brussels, the subjects principally discussed were: The best means for the blind to earn their livelihood; the advantages and disadvantages of a system of "shorthand"; recreation; causes of blindness in populous centers and the means of prevention.

Index of Ophthalmic Literature.—The *Ophthalmic Review,* at the close of the present year, will publish an index for its last fourteen volumes, from 1889 to 1902, inclusive. The index will embrace both its original articles and its reviews of current literature. This will make it a useful index of the ophthalmic literature of the period. A copy of it can be obtained by any one, by sending two shillings, sixpence to J. & A. Churchill, London, before December 31st, 1902.

TRANSLATION.

The Micro-organisms Found in the Conjunctival Sac and in the Various Forms of Conjunctivitis.*

BY DR. GERMANO CORSINI OF PARMA, ITALY.

[The article of Corsini furnishes such a complete account of the subject that it is here presented almost in its entirety. Although the otherwise excellent bibliography fails to take notice of certain important writings of Weeks, Gifford, Randolph and other American authors it presents, on the whole, a valuable retrospect and for that reason is also published.—*Casey A. Wood.*]

Bacteriology has, in late years, acquired such importance, especially in affections of the conjunctiva, as to call for a modification of the old classification that clinicians made of its diseases based on anatomical signs, on the appearance of the secretion, the clinical symptoms, etc. Today there is a world-wide recognition by all ophthalmologists of the fact that to establish an exact, scientific diagnosis it is necessary to take into account the etiological factors represented by micro-organisms.

The presence of micro-organisms upon the normal conjunctiva has been the subject of much study. It has long been known that in the mucus at the internal angle of the eye in healthy persons were to be found micro-organisms, while in the liquid which bathes the conjunctival surface none could be found and cultures were always sterile. One of the first to enter upon this study was Gallenga, who brought these facts to the notice of the Italian Ophthalmological Association in Genoa, in 1886; the subsequent studies of Neisser, Kuschbert and Leber confirmed this report. Many micro-organisms were found upon the palpebral margin and the cilia, and as regards their origin it was believed that they came directly from the meibomian glands. Of these bacteria the most frequently discovered was the bacillus of Reymond-Colomiatti. The bacilli of the meibomian secretion are twice as long as their breadth, usually grouped parallel to their length or irregularly spread about, resembling in size the bacilli of septicæmia in the rat and certain pseudo-diphtheritic micro-organisms. Each individual seems to be surrounded by a slight border, composed of more refractive matter. They grow well in blood serum, especially human, and have characters similar to those of the bacillus of diphtheria. Later, Fick published

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*I Microrganismi delle congiuntiviti, *Archivio di Ottalmologia. Anno x.* 1902. Fasc I-II, p. 17.

a monograph upon micro-organisms of the conjunctiva, in which he demonstrated that on it, in the normal state, were found many micro-organisms, the staphylococcus, the streptococcus and the micrococcus candicans of Fluegge, while Gallenga, finding the palpebral margin and lids very rich in microbes, did not recognize this abundant bacteriological flora in the normal conjunctiva.

At the International Ophthalmological Congress at Heidelberg in 1888, Leber confirmed the observations of Fick, affirming this constant presence of staphylococci and streptococci in the conjunctival sac. After him Gombert obtained the same results from repeated researches. Gombert concluded that there are many micro-organisms on the surface of the normal conjunctiva that are probably drained off into the lachrymal passages. These micro-organisms, which are constantly renewed on the conjunctival surface, come from the air, the water, etc., but not from the nasal fossae.

Arnold Lawson, in a series of cases, found the staphylococcus aureus once, the albus seven times, twice the pneumococcus of Fraenkel, and with great frequency the bacillus of xerosis.

Cuenod constantly found staphylococci, the aureus only in one-third of the cases, while search for the streptococcus was always negative. Finally Gasparrini, after numerous experiments, concludes that the diplococcus of Fraenkel is present eight times out of ten in the conjunctival sac, and is the microbe most frequently found. Then come the staphylococci, the pyogenes in a somewhat smaller proportion, that is, the staphylococcus pyogenes aureus seven times and the albus five times out of ten. The diplococcus is often found alone, but in the majority of cases it is associated with the staphylococcus. The streptococci are, then, rarer than the staphylococci, having been found by Gasparrini only fifteen times out of 100 cases; while the staphylococcus pyogenes citreus is even more rare. Yet the conjunctiva has in the tears an antiseptic agent which preserves it to a certain degree from micro-organisms, as a paper by Valude has demonstrated.

Though the results of observations in the field of the bacteriology of the conjunctiva in the normal state are quite abundant they are much more extended of the conjunctiva in its pathological condition. In this field bacteriological research has an interest even greater as it is the sole means of establishing a diagnosis with certainty. I will refer briefly to the biology, the morphology and the variety of cultures of the different pathologic agents which sustain the different forms of conjunctivitis, and then pass to the results of my own observations made in the clinic of Prof. Gallenga, of the Royal University of Parma.

Acute contagious conjunctivitis is characterized by a marked conjunctival injection and a muco-purulent or decidedly purulent secretion, in which is found a small bacillus first noted by Koch (1884 in Egypt) and subsequently studied by Weeks of New York some years later and now known under the name of the Koch-Weeks bacillus. Weeks [*Archives of Ophthalmology*, XV. No. 4. Editor] cultivated it on gelatin and obtained minute colonies in which besides the specific bacillus was also found another smaller bacillus which stained more intensely and presented an enlarged extremity. He cultivated the club-shaped bacillus alone and inoculated it five times upon the human conjunctiva, but did not obtain any positive result, although inoculation with the mixed bacilli, in six cases he always produced a conjunctivitis more or less acute, which began forty-eight hours after the inoculation and lasted two or three weeks. Kartulis [*Centralbl. f. Bacteriol. und Parisitenkunde*, No. 9, 87. Editor] made six inoculations upon the human conjunctiva, but succeeded in setting up an inflammation in two only. Morax placed on the eye a drop of the solution in water of the bacillus and reproduced the typical form of conjunctivitis. With a thermostat at 35°, after 24-36 hours, there appeared near the striae of culture a very fine punctate appearance, barely visible, which was formed of transparent colonies, that were hardly differentiated from the surface of the gelatine; these were the colonies of the Koch-Weeks bacillus. Besides these were others, those of the bacillus which Weeks called the "club" bacillus, larger and forming a little gray spot much plainer than the others.

In the culture the bacillus presents itself in little masses in which the bacilli are mixed with one another; they are immobile, stain well with aniline colors, but do not take Gram's stain.

Bacilli in a culture more than eight days old stain with difficulty, or not at all, and in old cultures can no longer be distinguished by their shape. Inoculations of these on the conjunctiva do not colonize in any animal, nor do injections of the culture into the anterior chamber of the rabbit, or under the skin of the rat produce any disturbance. Gonin recites two cases in which the Koch-Weeks bacillus was associated with the gonococcus; many others found it in acute cases accompanied by the staphylococcus, and believe that the bacillus of Koch-Weeks could be mistaken for that of diphtheria.

The Koch-Weeks bacillus is considered by all as a direct bacteriological individuality. Weeks, at the International Medical congress in Berlin, in 1890, said that he had found it in more than a thousand cases; in France it had been studied by Morax, and in Italy by various authors, but in the XVth Congress of Ophthalmology at Heidelberg, Axenfeld declared that he had never found it in Marburg during a catarrhal epidemic; Peters of Bonn and Fuchs of Vienna said the same, while Sourdille, Uhthoff, Aubineau, Hippel, Pichler, Coppez, and Pes observed this same form of conjunctivitis produced by pseudo-diphtheritic bacilli, and in some cases even by the virulent bacilli of diphtheria.

Blennorrhagic Conjunctivitis.—When Neisser, in 1897, discovered the gonococcus he observed at once its presence in blennorrhagic conjunctivitis in the same proportion as in the urethral affection. Leistikov, Bockhart and all the other scientists who after him studied the gonococcus, confirm this report. Hirschberg and Krause found the gonococcus also in the conjunctivitis of the new-born, and it is in this form of conjunctivitis that Bumm made his researches. The gonococcus generally assumes the diplococcic form, and by preference takes its place in the protoplasm of the leucocytes, forming masses more or less large, although they may also exist outside of the cells. It is only when energetic treatment has markedly reduced the conjunctival secretion that the gonococci are found only in the phagocytes. The best staining method is that of Gram, although according to Morax it is the only coccus in the conjunctival secretion that does not take the Gram stain.

In 1886 Roux insisted on the utility of the Gram stain as a diagnostic of gonococcus. The reaction was first noted by him, and it was Bumm who had made it public. Roux was the first to demonstrate its full importance, so that some Swedish authors, among them Steinschneider, called it the "Roux-Gram reaction." Treated by this method the gonococcus is rapidly and completely decolorized. As a culture medium See has recommended above all animal serum; another good method of culture is on agar mixed with ascitic fluid, that from a hydrocele, or simple urine. In the conjunctivitis of the new-born we are not always sure of finding the gonococcus, though it is found in the majority of cases; in others a careful examination does not show it. Morax, in the form that he called "benign ophthalmia in the new-born," once found the pneumococcus, again the bacillus of Weeks, and in other cases by bacteriological examination did not get enough data to found a diagnosis. Grouenow, in 40 cases of ophthalmia neonatorum, 14 times found the gonococcus, 3 times the bacterium coli, once the staphylococcus aureus. The gonococci are found usually mixed with other micro-organisms; the pneumococci gave the clinical appearance of a catarrhal conjunctivitis, or a blennorrhagic one. Axenfeld has seen two characteristic cases of blennorrhoea of the eye produced by micro-organisms other than the gonococcus; Leber counselled much prudence in the interpretation of these results, and Bach, Uhthoff and Schmidt-Rimpler admit that there can be ocular blennorrhoea without gonococci. Parinaud observed in the new-born, aside from gonorrhoeal conjunctivitis, a special inflammation of the conjunctiva, benign in appearance, but of long duration; it was usually accompanied by obstruction of the nasal canal, and in the secretion he found pneumococci, but absolutely no gonococci or Koch-Weeks bacilli. Sometimes in children affected with vulvo-vaginitis a form of conjunctivitis is met with to which has been given the name blennorrhagic conjunctivitis; and leucorrhoeal conjunctivitis is generally of a blennorrhœic character. Widmark, Terson and Morax have found the gonococcus in secretions from the conjunctiva of infants, but in much less quantity than in ophthalmia neonatorum. Some regard blennorrhagic conjunctivitis as more frequent, and as due to direct infection, but there exists a rheumatoid conjunctivitis, either spontaneous or metastatic, which is not due to direct inoculation by a pathogenic agent. The cases studied bacteriologically are many: Vanderstraeten always obtained negative results: Souplet dared not make a categoric affirmation, while in the cases referred to by Haltenhoff the secretion was not examined. The cultures of Gielen remained sterile; Sattler found no gonococci; Morax studied two cases, and in only one established the presence of gonococci, although he believes that this conjunctivitis may be of true gonococcic origin, and admits the probability of a true gonococcic metastasis.

The subject of purulent conjunctivitis has been thoroughly studied and numerous researches have led to the following results: Of true blennorrhagic conjunctivitis the most numerous group is the gonococcic, then come those due to pneumococci, then those due to the diplococci. More rarely are seen in this form of conjunctivitis other micro-organisms, such as the bacillus coli, the bacillus of diphtheria, a species of intracellular diplococcus which Axenfeld and Fraenkel believe to be a simple staphylococcus that penetrates the white corpuscles, and, in very rare cases, the intracellular meningococcus.

Pseudomembranous Conjunctivitis.—The conclusions of Guibert, Moritz, Fage, Uhthoff, Bromer, Valude, Pes, Morax and the accurate studies of Sourdille based upon many experiments, demonstrate that the old classification of Graefe has no *raison d'etre,* and that between a simple, superficial exudation on the conjunctiva and a diphtheritic infiltration no real difference exists except in degree, and, secondly, that in one or other variety the staphylococcus pyogenes, the streptococci, or the bacilli of Loeffler predominate. According to Sourdille, when there are found in the false membrane long, straight and thin bacilli, few in number, we have the mildest form of croupous conjunctivitis; when, on the other hand, the bacilli are shorter, larger and bent, the condition corresponds to a form of medium gravity, and, finally, when curved bacilli are found, twisted, numerous and associated with many streptococci, we have a grave form of diphtheritic exudation.

Sourdille claims that the gravity of the infection depends on two factors: polymicrobic association and the virulence of the bacilli. We cannot, however, be certain that the form in which it is found is necessarily grave, because not only is the Loeffler bacillus present in mild and superficial cases of pseudomembranous conjunctivitis, but cases are not lacking of the gravest nature in which it was not possible to discover this bacillus. The usual diphtheritic bacilli examined under the microscope, in stained preparations, present clubbed ends, are arranged like fence-palings or piles of pins, and readily stain with Gram, while the true Loeffler bacilli stain badly with Gram, or stain only with the Gram-Weigert method. The latter are immobile, 4-6 microm. long, and present swellings along their surface and at the extremities. For its culture the blood-serum of Loeffler is specially indicated, in which medium, at the temperature of 37° C., after two days' exposure there is formed a thick, whitish envelope.

In the cultures are involution forms characterized by individuals with club-shaped extremities and intermediate swellings. They give off no gas and are anaerobic, facultative bacilli, cultivated at a temperature above 24° C. In broth they give a slight turbidity, and at the periphery form a thin membrane of small friable scales which, on agitating the tube, fall to the bottom, following the walls of the tube in such a way as to present striae; the culture in broth of true pathogenic diphtheritic bacilli, on the third or fourth day becomes acid, and strongly acid on the 5th day; then slowly after some weeks becomes alkaline. Upon glycerine agar a colony of diphtheria bacilli is 1 to 2 m. across, raised into a little white cone at the center, thin at the edge and without a halo; the culture of the pseudo-diphtheritic bacillus is as large as 6-7 mm. across and cream white, more opaque and thicker. On gelatine it does not grow well, but develops slow in small and stunted colonies. Upon agar serum it gives a plate formed of numerous little confluent, circular colonies, of whitish color, and moist looking. On potato the true diphtheritic bacillus does not usually develop; if the potato is alkaline, sometimes small colonies grow with difficulty: on the other hand, the pseudo-diphtheritic bacillus flourishes and forms a whitish and somewhat mammellated mass. Neither the diphtheritic nor the pseudo-diphtheritic bacillus coagulates milk. In agar neither develops gas. The diphtheritic bacterium develops only after some weeks, while the pseudo-diphtheritic after a week gives a slight flesh tint. In their action upon animals can be distinguished three kinds of pseudo-membranous organisms, (1) the pathogenic, that is, the true diphtheritic or Loeffler bacillus, which kills the animal with marked local oedema in which is found only the true diphtheria bacillus. This is associated with exudation into the pleura and much reddening and congestion of the supra-renal capsules; (2) the bacillus which gives only a local oedema if injected under the skin of the animal, and is recognized by the test of Spronch; (3) the true pseudo-diphtheritic bacillus or bacillus brevis, affecting the nose and the mouth, entirely innocuous to animals, and always saprophytic. Gallemaerts found for the first time in 1891, the bacillus of Loeffler in a purely superficial case of conjunctivitis; the year after Woods published anther case, and from that time the same observations have gone on increasing in number. From them I cite the studies of Sourdille, Moritz, Uhthoff, Schirmer, Gosetti and Jona, and of Prof. Coppez, who, in a recent publication, related the most minute particulars regarding morphology culture, not only of the true diphtheritic bacillus, but also of the various pseudo-diphtheritic bacilli. The result of the study of these authors is that there may be found in the normal conjunctival sac the true diphtheria or Klebs-Loeffler bacillus, the pseudo-diphtheritic or Hoffman bacillus, the xerosis or Reymond bacillus, the bacterium septatum or Gelpke bacillus. The three last may furnish a form of pseudo-membranous conjunctivitis: of these the bacillus of Loeffler is characterized by its virulence, that of Hoffman by the exuberance of its development, the bacillus of xerosis by the absence of exuberance in its development. It is well known that cases of pseudo-membranous conjunctivitis have been produced by other micro-organisms, e. g., the formation of pseudo-membrane in gonorrhoeal conjunctivitis, already noted at the clinics in the time of Graefe, was observed more recently by Streatfield and Gelpke, Morax, Axenfeld and Coppez. Pichler saw it in diplococcus conjunctivitis; Brayley and Eyre found that the pneumobacillus of Friedländer may give rise to a pseudo-membrane, which may also be found in acute catarrhal conjunctivitis; finally, the bacilli of the group bacterium coli may also terminate in the formation of a false membrane.

Pseudo-membranous conjunctivitis due to streptococci has been described by Coppez, Franke, Despagnet, Pichler, Darier, Vanderstraeten, Lebrun, Gasparrini, Uhthoff, while the same condition due to staphylococci studied by Gosetti, Gasparrini, Pes and Bietti in this (Parma) clinic.

Conjunctivitis Due to Streptococci.—This is a very .rare form of conjunctivitis. Literature furnishes three cases recorded by Parinaud, one by Bardelli, one by Galezowski, one by Gonin. They were met with in persons who had some disease of the lachrymal passages, but in these cases may at times be found the single diplococcus of pneumonia; besides this it is accompanied by an iritis. If we accept the theory of Leber, this iritis is the effect of certain soluble products in the metabolism of the streptococcus, which appears in the conjunctival secretions either free or inclosed in the phagocytes. On gelatine there form, on the third or fourth day, little white colonies without liquefaction of the gelatine; under the microscope at the border of the colonies are observed beautiful streptococci patterns. With broth and milk they form an albuminous poison. In agar and serum they give thin plates, gray-white and semi-transparent. In broth they produce a rapid turbidity; then the broth becomes clear with a whitish, flocculent sediment. It is especially in broth that the disposition in long chains is seen. In solid masses the association of the elements is limited for the most part to the diplococcus forms.

As regards the staphylococcus, it is to be noted that the cases are rare in which this is the only pathogenic agent discovered; follicular conjunctivitis is regarded by some as always produced by staphylococci. Others believe that both the staphylococci and the pneumococci are found. Cases of pseudo-membranous conjunctivitis from the staphylococcus pyogenes are recorded by Gasparrini, Axenfeld, Bietti, Gosetti and Pes. Usually it is the s. aureus that produces the alteration in the conjunctiva although its companion, the albus, may bring about the same changes, as may other distinct varieties of the s. citreus, s. cereus, etc.

Pneumococcus Conjunctivitis.—This is not very frequent. These bacteria appear as lance-shaped cocci, by twos, or in chains of 4-6. They are capsulated, but the capsule is usually difficult to see, and in some cases seems to be partly or entirely lacking, if the culture be made on conjunctival secretion, but it is much more easily stained if the pneumococci be examined in bronchial secretion. They are anaerobic bacilli, and need for their development a temperature of 37° C. Gelatine is not fluidified; cultures in mucus give round colonies, transparents and very small, which after four days measure 1-2 mm. across. Observed with a power of 70 diameters it is found that they are slightly granular; the collection being at first filiform, then ring-like. In agar the colonies show a slight gray-white appearance, and a slight whitish sediment in the water of condensation; serum develops a very similar plate, but less transparent and of a mucous consistence. In broth is deposited a whitish sediment, not agglutinated and here the cocci develop more abundantly than in other media, but disappear more quickly. They coagulate milk and determine the formation of a small quantity of acid. They do not develop on potato. The reaction with indol is very feeble. For the microscopic examination of these micro-organisms an immersion objective must be used; the two parts of the bacillus together measure 1.8 micrometer in length and 1.5 micrometer in breadth. They react well to Gram's stain.

Trachomatous Conjunctivitis.—The bacteriological factor in trachoma is much more obscure. Certainly the contagiousness and universal prevalence of the disease have justified the active researches that many investigators have undertaken to discover the form of the contagion that causes this form of conjunctivitis. Unfortunately these investigations have as yet had no positive results. Sattler was the first to find micrococci in the secretion of the trachomatous conjunctivitis. These, according to him, take the form of diplococci, and are very similar to those of gonorrhoea. Michel, Goldschmidt, Stadderini have obtained results similar to Sattler, while Leopold Müller, and, lastly, Addari, have continually encountered a bacillary form. These experiments have not reached any positive result, so that nothing precise can be stated in regard to the bacteriology of trachomatous conjunctivitis.

Conjunctivitis From Diplobacilli.—Morax, in 1896, was the first to publish his investigations of the pathogenic micro-organisms in this form of conjunctivitis. He called it "subacute conjunctivitis," and recognized the cause in a diplobacillus which then took his name. In the same year Axenfeld communicated to the Ophthalmological Congress at Heidelberg his studies in this direction, which demonstrated, like the experiments of Morax, the presence of a diplobacillus. Peters, Gifford, Bach and Neumann, Schoute and Augerias occupied themselves with the same subject. In Italy only one author—Bietti—has investigated this subject, he having reported observations made in the clinic of Axenfeld at Rostock. The pathogenic micro-organism can be observed only in preparations from the conjunctival secretion;

this is usually very rich in fibrin and the diplobacilli are found for the most part in the desquamated epithelial cells, or in the leucocytes. It has the form of two short bacilli separated from one another by a space, and cannot be mistaken for any except the pneumo-bacillus of Friedländer, and perhaps with that of ozena, but from these it is differentiated by the absence of a capsule. Gifford believes that the diplobacillus of Morax-Axenfeld is capsulated; but this statement of his is not generally accepted. It stains easily with basic aliline colors, but is decolorized by Gram's stain. It assumes a red coloration (which make it very conspicuous among the other micro-organisms which resist it) by adding to these a little Lugol's solution. Each bacillus, somewhat rounded at the extremities, measures about 2 micromm. in length and 1 micromm. in breadth. It develops sparingly in the ordinary culture media; Morax cultivated it in agar-serum; a good medium is blood serum prepared by the Loeffler method, which after twenty-four hours appears "ribbed" on the surface, presenting here and there round depressions, like those that might be left by the head of a pin. Ordinarily these depressions have a diameter of 1-2 mm., and become with time a little larger, because the micro-organisms slowly fluidify the culture medium. If the medium is whitish, the depression assumes with this fluidification a brownish color. The fluidification of the serum produced by the diplobacilli is different from that produced by other micro-organisms in this, that while a pure culture of diplobacilli presents, after 15 days, an appearance not differing from that after twenty-four hours, except that the depressions are a little larger, the fluidification produced by the other micro-organisms is progressive as to size of the colonies. It is strictly anerobic and in pendant drops, has no movement of its own; the formation of the spore has not yet been observed. In the center of the micro-organism is often observed vacuoles, which have been attributed to fatty degeneration. The diplobacillus of Morax-Axenfeld is not pathogenic for animals; yet in man the results of inoculation have always given positive results. Often with the diplobacillus are found staphylococci and pseudo-diphtheritic bacilli; more rarely it is associated with the diplococcus of Fraenkel and streptococci. Mixed infections are rare, according to Axenfeld, but according to Bach they are frequently observed. If one means by "mixed" infection not only the presence of different organisms, but a mixture of different specific agents having an influence on the morbid process the statement of Axenfeld is that most generally accepted.

Rare Forms of Bacterial Conjunctivitis.—Of the unusual forms of conjunctivitis caused by pathogenic micro-organisms I mention here: *tubercular conjunctivitis* of which Sattler, Fuchs and others have spoken, and which has been accurately studied in Italy by Falchi and Pisenti; *lepra of the conjuctiva,* a form less common because it attacks the cornea more often than the conjunctiva. Of this only two cases published by Bistis and Hulanicki have been noted; *glanders of the conjunctiva,* about which there is an interesting article by Gourfein: *conjunctival actinimycosis,* of which two cases are noted, one by de Vincentiis, the other by Demicheri, and lastly *borthyomycosis,* of which only one case has been described.

After this introduction, touching the chief micro-organisms which are the cause of conjunctivitis, I will give the results of some of my own observations. They especially concern cases in which the clinical examination indicated the presence of an acute catarrhal conjunctivitis, probably due to the Koch-Weeks bacillus.

For the examination of the secretions the following method was used: Stroking with a sterilized platinum needle the conjunctiva of patients, a little secretion is brought away and fixed by heat on glass. With the same needle, which has meantime been passed through the flame, a little more secretion is obtained with which cultures are made in different media—agar-agar, gelatine (in peptonized broth, or laboratory gelatine)—glycerinated agar, broth, milk, potato, but especially in blood serum prepared by the Loeffler method, that is, two parts of blood obtained under the greatest possible aseptic precautions in vessels previously sterilized, with one part of broth of horse flesh or of calf, 1 per cent of glucose, 1 per cent white peptone and ½ per cent chloride of sodium. After four hours in a thermostat at 36° C., on the medium are developed colonies of the micro-organism, of which a portion is taken with a platinum neeedle previously sterilized and fixed by heat on a slide. The staining method used was usually the method of Gram, associating with it other methods, as for example, the stain of Neisser, the stain with eosine and methyl violet of Unna; the method of Finger and Weigert's method. Experiments were made with the serum of Loeffler, one of the best and most useful media for micro-organisms; its preparation requires no little time and care, but as a recompense one finds in it a most powerful aid in the study of micro-organisms. Not every bacterium grows well in it. For example, the Loeffler bacillus flourishes, as do the various forms of pseudo-diphtheritic bacilli, those of xerosis, the pyogenes communis, and it is the typical medium for the culture of the diplobacilli of Morax-Axenfeld.

On the other hand the Koch-Weeks bacillus (I mean the true pathogenic form, not the club-like organism accompanying it which grow equally well on serum) does not find in it a good soil, so that it grows slowly and soon dies. For this bacterium agar-agar 0.5 per cent, prepared after the method of Morax, is best. For experiments on the lower animals we used young guinea pigs, while on man we were limited to one patient who presented himself voluntarily. The object of these observations was to decide whether a bacteriological examination was absolutely indispensable for the diagnosis of every variety of conjunctivitis, or was only necessary for some of them. It was also considered important to enquire whether this examination gave constant and certain results and if it could be extended to all the forms of conjunctivitis. Seventy cases, that attended the clinic of the Royal University of Parma, were carefully examined, and the following are the results and the conclusions reached:

Acute Catarrhal Conjunctivitis.—In the course of the observations those forms of conjunctivitis were especially studied which clinically had all the appearance of an acute catarrhal conjunctivitis; however, the bacillus of Koch-Weeks was very rarely found—only in the proportion of about 20 per cent. The presence of this micro-organism in the preparations made directly with conjunctival secretion was recognized more rarely than in those from cultures, and it was seen that this bacillus is also found in blood serum prepared after the Loeffler method, a medium little favorable to its development. After remaining twenty-four hours in a thermostat little colonies appeared in the medium, transparent, slightly raised and mixed with growths of a grayer color not easily distinguishable. The microscopic examination showed the presence of true, pathogenic Koch-Weeks bacilli (which stained negatively with Gram's stain) mixed with the usual club forms. However, of 46 per cent of the cases observed (in those patients whose clinical symptoms indicated an acute catarrhal conjunctivitis) the bacteriological examination demonstrated the presence of a small-sized bacillus, only slightly colored by Gram's stain. This had quite different characteristics and seemed to be related to the diplobacilli disposed in a certain order which recalled the arrangement in palings of the pseudo-diphtheritic bacilli. Now what was this bacillus if not the club-shaped bacillus that accompanies the Koch-Weeks bacillus which found in Loeffler serum a medium favorable to its development but fatal to the Koch-Weeks bacillus? That this is the true interpretation of the presence of this bacillus is demonstrated by the fact that in one-third of these cases observed, the bacillus was accompanied at the beginning of the observation by the bacillus of Koch-Weeks of which no traces were found in successive transplantations of the micro-organism. To demonstrate that this bacillus, which always accompanies the Koch-Weeks bacterium, is a pseudo-diphtheritic one, was attempted in experiments carried on by myself not only on animals (guinea pigs) but upon a human subject in the clinic. It was demonstrated in the latter case that the bacillus was not truly the club-shaped organism accompanying the Koch-Weeks bacillus. The first microscopic examinations of the secretions and of the cultures obtained from this patient, abundantly showed the presence of the Koch-Weeks bacillus, which, later, disappeared. These cultures resulted in many small gray colonies, punctiform, side by side, and sufficiently confluent to form a large, elevated band, 2-3 cm. long. It did not render broth turbid and did not coagulate milk. By microscopic examination it presented the following characteristics: It stained slightly with Gram; arranged itself in a certain order; resembled the club form; injected under the skin of a guinea pig it produced only a slight oedema; placed on the cornea of another animal and injected into the anterior chamber it produced a corneal opacity which soon disappeared. On the conjunctiva of man it produced a slight catarrhal secretion. As to the association of this bacillus with the other micro-organisms, the chief observation was that it occurred five times with staphylococci, yet in several cases there was noticed a bacterium which resembled in shape the bacillus of xerosis. In some cases also it was found associated with a long bacillus, which was probably an involution form of the bacillus itself.

Blennorrhagic Conjunctivitis.—Bacteriological examinations always showed the presence of cocci. The reactions to the usual reagents recalled the gonococci found in two new-born children, who recovered with the use of silver nitrate, both the eyes having been attacked by the disease. In another child, six years of age, there was a purulent secretion in the right eye, and a slight catarrhal secretion in the left eye. The microscopic examination showed the presence of gonococci, the cornea remaining normal and the little patient recovering in a short time. The only case of blennorrhagic conjunctivitis in an adult was a woman 26 years old, mother of the baby child just mentioned, whose eyes were also affected by conjunctivitis. In spite of the most energetic treatment the process invaded the cornea and the visual power was entirely destroyed. She was a washerwoman and in all probability received the contagion from infected linen. In the conjunctival secretions of this patient many gonococci were found, in much greater number than in the secretion of her child, the baby mentioned.

Pseudomembranous Conjunctivitis.—Here we have to register an important observation: In the conjunctival secretion and in the false membrane of the eyes of an infant there occurred as the only pathogenic agent the staphylococcus pyogenes. Aside from this, the affection was of a mild type, so much so that the little patient recovered in a few days. The pseudomembranes were quite resistent and the lid swollen although the actual adhesion to the conjunctiva was slight. The exudate was easily removed without bleeding or leaving behind any trace of its presence and the cornea remained normal. In both eyes there was an abundant secretion of a yellowish-white color. Axenfeld was the first who observed a case of this kind, after him Gasparrini; Pes met with some other cases, and finally Bietti observed three examples in the eye clinic of Parma.

Streptococcus Conjunctivitis.—Staphylococcus Conjunctivitis.—The presence of streptococci in conjunctival secretions is a rare condition. In one case only could their presence be asserted, and even in this case they were mixed with abundant staphylococci. There was in this patient no lesion of the lachrymal canal which, according to some authors, is sometimes the cause of this form of conjunctivitis. In a new-born child presenting an infection that was clinically a purulent conjunctivitis, were found large cocci in chains which resembled streptococci. The case was readily cured in a short time and it was found to be difficult to determine positively the character of the pathogenic bacteria. It may be said that it is hardly possible to classify those cases of conjunctivitis in which the sole pathogenic agent discovered is the staphylococcus. In the course of these observations we have met with ten such cases, but do not know exactly what importance to attach to the fact. It is true that the staphylococcus may, if in large numbers, produce a certain form of acute conjunctivitis, but it must be remembered that they are often found on the normal conjunctiva without producing any alteration whatever, that they continue to live, even if the conjunctiva is the seat of an inflammatory process which has its cause in a quite other pathogenic agent, and after the micro-organism which really caused the affection has been banished by the increased growth of the staphylococcus itself, which in this case may have been the innocent guest of the conjunctiva.

Pneumococcus Conjunctivitis.—The subjects of this observation were two new-born children, who presented a form of conjunctivitis which clinically had the usual characteristics of a conjunctivitis from pneumococci. The microscopic examination showed the presence of large cocci without a capsule. The disease showed no virulence; in all probability, as might be supposed, they were pneumococci, but in the state of involution of the micro-organism. Involution forms were also discovered in the eyes of an adult, who was the object of one of our observations. Even where the cultural characteristics demonstrated the presence of pneumococci, and the microscope showed precise forms with the capsule, inoculations made on animals, if they produced at first a notable disturbance, were later well borne. In one of the two cases cited, the new-born child was not treated until near the termination of the disease, because it died a few days after being presented at the clinic. In the other case the affection ran a short course, and energetic treatment was followed by a favorable result. The third case was in an adult, aged 44; here also the conjunctivitis terminated favorably. In neither case were there corneal lesions; in the two newborn children the muco-purulent secretion was slight; in the adult there was a marked congestion of the ocular conjunctiva. The micro-organisms grew sparsely on the ordinary culture media and soon died, thus showing they had little virulence; on the other hand, they were mixed with a few small bacilli, a number of which resembled the bacilli of xerosis. These soon ceased to grow on account of the acute catarrhal conjunctivitis.

Diplobacillary Conjunctivitis.—The diplobacillus of Morax-Axenfeld was met with in 20 per cent of the cases. They were mostly in adults, one a girl of ten, the other a child of 4 years of age. The last was a rare case, for Axenfeld says that he had never met with an instance in a patient of less than ten years old. Bach and Neumann showed by statistics that only 2 per cent of these cases are found in patients of from 4 to 10 years of age, but one should add that Morax, though stating that they usually develop in adults, admits that the disease may attack persons of all ages. It has been said that this conjunctivitis constitutes 20 per cent of all cases of infective conjunctivitis, but the figures are less than those of Bach and Neumann and of Morax, in whose observations they reach 30 per cent. Even these figures are less than the percentage found by Gonin, who studied the cases at the Ophthalmic Hospital in Lausanne. While most authors are in accord in attaching no importance to the influence of meteorological conditions on the development of these forms of conjunctivitis, still we observe that the cases seen by us came in the autumn. None presented themselves in the winter, and hence we conclude that climatic conditions may have had some influence in determining the disease.

We also draw attention to the fact of the relative scarcity of our observations, in comparison with the numerous cases seen by Gonin in patients from the mountainous cantons of Switzerland. In persons affected with this form of conjunctivitis there was but a slight secretion of mucus. The affection was bilateral and had an especial liability to attack the external canthi towards the palpebral margins.

CONCLUSIONS.

I. The microscopical examination of the conjunctival secretion is of great value in diagnosis and in some cases is necessary to determine the precise character of a conjunctivitis. When the results obtained are unsatisfactory doubts may almost always be cleared up by a further study of cultures in various media made directly from the conjunctival exudates.

II. The bacteriological report is a sure means of classifying the affection; many cases of conjunctivitis which present all the clinical data necessary to place them in one class or another, when studied from the bacteriological standpoint, often represent attenuated cases of a conjunctivitis due to quite a different pathogenic agent, which, in a condition of greater virulence, would have produced an exudation of a very grave and deleterious nature.

III. The microscopic examination is not equally satisfactory or easy in all forms of conjunctivitis. Fortunately it is comparatively certain in the usual examples of catarrhal conjunctivitis. It is not difficult to deal with diplobacilli, streptococci and staphylococci; in the case of the pneumococcus and of the pseudo-diphtheritic forms special care and some patience are required.

BIBLIOGRAPHY.

1875. Horner.—Ophtalmiatrische Miscellanea.

1880 De Vincentiis. Le alterazioni oculari della lebbra.—(Movimento Medico-chirurgico 1880).

1881. Hirschberg.—Krause.—Zur Pathologie der ansteckenden Augenkrankeiten.—(Centralbl. f. Augenheilk, 1881).

Campana.—Note cliniche ed anatomiche sulla lebbra.—Milano, 1881.

1882. Krause.—Die Mikrococcen der Blenorrhœa Neonatorum. (Centrabl. f. prakt. Augenheilk, 1882).

1884. Widmark.—Einige Beobachtungen über die Conjunctivitis Blenorrhagica. (Hygiea, 1884).

1886. Michel.—Ueber die Mikrorganismen der sogennanten Egyptischen Augenentzündung. (Klin. Monastblätter f. Augenheilkunde, 1886).

— Gallenga.—Osservazioni di batteriologia. (Ann. d’Ottalmologia, fascicolo 5° del 1886).

— Secondi.—Sulla lepra oculare (Ann. d’Ottalmologia, 1886).

— Mazza.—Tumori leprosi sclerocorneali (Ann. d’Ottalmologia, 1886).

1887. Fick.—Ueber Mikrorganismen in Conjonctivalsack. (Wiesbaden, 1887).

— Michel.—Ueber Mikrorganismen in Conjunctivalsack. (Monastblätter f. Augenheilk, 1887).

1888. Leber.—Die Bedeutung der Bakteriologie für die Augenheilkunde (Opht. Congress.—Heidelberg, 1888).

— Wagenmann.—Beitraege zur Kenntniss der tuberkulosen Erkrankungen des Sehorgans. (Arch. f. Opht, 1888).

1889. Gombert.—Recherches sur les microbes de la conjonctive a l’ètat normal. (Montpellier, 1889).

— Landolt.—Beitrag zur Kenntniss der Augentuberkulose. (Inaug. Dissert, del 1889).

— Sanarelli.—Sull’infezione morvosa.—Siena, 1889.

1890. Steinschneider.—Zur Differzirung der Gonokokken. (Berliner Klin. Woch., 1890).

1891. Nieden.—Ueber Conjunctivitis Blenorrhagica (Klin. Monatsbl. f. Augenheilk, 1891).

— Fage.—Conjunct. pseudomenbraneuse.—Examen microbiologique. (Arch. d’Ophtalmologie, 1891).

1892. Bellouard.—Etude sur l’apparition precoce de l’ophtalmie purulente chez les nouveaeu-nés. (Thèse de Paris, 1892).

— Galezowski.—Conjonctivites lacrimales san ou avec streptococques. (Recueil d’Opht, 1892).

1893. Souplet.—La Blenorrhagic maladie générale. (Thèse de Paris, 1893).

— Sourdille.—Etude clinique. bacteriologique et therapeutique sur la diphterie oculaire. (Arch. d’Ophtalmogie, 1893).

— Deyl.—Ueber die Aetiologie des Chalazion. (Prag, 1893).

— Guibert.—Conjonctivite pseudomembraneuse chronique.—Examen bacteriologique. (Arch. d’Opht, 1893).

— Gasparrini.—Il diplococco di Fraenkel in patologia oculare. (Ann. d’Ophtalmologia, 1893).

— Hulanicki.—Ophtalmia leprosa.—(Saint-Petersburg Med. Wochensch, 1893).

— Partsch.—Actinomicose der Augenlider. (Centralbl. f. prakt. Augenheilk, 1893).

1894. Cuenod.—Bacteriologie et parasitologie cliniques des paupieres —Paris, 1894).

— Morax.—Recherches bacteriologiques sur l'etiologie des conjonctivites aigues. (These de Paris, 1894).

— Panas.—Traité des maladies des yeux. (Paris, 1894).

— Parinaud.—Conjonctivite lacrymale a pneumocoques des nouveaunés (Ann. d'Oculist, 1894).

— Vignaudon.—De l'arthrite blenorrhagique chez l'enfant. (Thèse de Paris, 1894).

— Escherich.—Aetiologie und Pathogenese der epidemische Diphterie. (Wien, 1894).

— Uhthoff.—Ein Weiterer Beitrag zur Conjunctivitis diphtherica. (Berlin. Klin. Woch, 1894).

— De Vincentiis.—Actinomicosi congiuntivale. (Lavori della Clinica Oculistica di Napoli, 1894).

1895. Rattone.—Dei Microrganismi. (Torino-Bocca, 1895).

— Bardelli.—Sull'eziologia delle iriti nelle congiuntiviti da streptococco. (XIV Congresso dell'Associaz. Ott. It., Venezia, 1895).

— Gasparrini.—Batteriologia delle congiuntiviti acute. (XIV Congresso dell'Assoc. Ott. It., Venezia, 1895).

— Cuenod.—Il pneumococco in patologia oculare. (Congresso della Soc. Franc. d'Ott. a Parigi nel 1895).

— Fuchs.—Manuale d'Ottalmologia. (Traduzione italiana, Milano, 1895).

— Gosetti.—Croup-difterite della congiuntiva. (Ann. d'Ottalmologia. Supplemento, 1895).

— Bardelli.—Contributo allo studio delle congiungtiviti da streptococco. (Ann. d'Ottalmologia, 1895 facs. 4°).

1896. Sée-Le Gonocoque. (Paris, 1896).

— Brayley and Eyre.—Membrane on the Caruncle, due to Friedländer's Bacillus. (Ophth. Review, 1896).

— Taylor.—Congiuntivite pseudodifterica. (Lav. della Clinica Oc. di Napoli, 1896).

— Villeneuve.—Des conjonctivites a streptocoque. (Paris, 1896).

— Axenfeld.—Ueber eine durch Pneumokokken hervorgerufene Schulepidemie von Conjunctivitis. (Berlin. Klin. Wochenscr, 1896).

— Morax.—Note sur un diplobacille pathogéne pour la conjonctive humaine. (Ann. de l'Institut Pasteur, 1896).

— Gourfein.—Un cas de morve oculaire primitive. (Arch. d'Opht, 1896).

— Chiarini e Fortunati.—Un caso di lebbra mutilante con lesioni oculari. (Ann. d'Ott., 1896).

— Mitwalsky.—Contribution a l'etude de la tuberculose de la conjonctive. (Comptes Rendu de la Soc. Franc. d'Opht., 1896).

1897. Baumgarten.—Untersuchungen über die Pathogenese und Aetiologie der diphtherischen Membranen. (Berlin. Klin. Woch., 1897).

— Coppez.—Des conjonctivites pseudomembraneuses. (Paris, 1897).

— Gifford.—Der Fraenkel'sche Diplococcus als haüfiger Erreger des acuten Bindehautcatarrhs. (Arch. f. Aug., 1897).

— Muller.—Zur Bacteriologie des Trachoms. (Wiem. Klin. Woch., 1897).

— Axenfeld und Uhthoff.—Weitere Beiträge zur Aetiologie der Keratitis des Menschen, besonders der citrigen. (Arch. f. Ophthal., 1897).

— Peters.—Ueber die chronische Diplobacillen conjunctivitis (Klin. Monast. f. Aug., 1897).

— Pisenti.—Contributo clinico ed anatomico allo studio della tubercolosi primitiva della congiuntiva. (Perugia, 1897).

— Evre.—Tuberculosis of the Conjunctiva. (Britsh. Med. Journal, 1897).

1898. Pes.—Note batteriologiche al bacillo del sebo Meibomiano. (XV. Congr. dell'Assoc. Ott. It., Horino, 1898).

— Lawson.—Bacteriology of the Normal Conjunctival Sac. (Brit. Med. Assoca., 1898).

— Pes.—Sul bac. di K-W. nel cosidetto catarro epidemico della congiuntiva. (XV. Congr. dell'Ass., Ott. It., a Torina, 1898).

— Grouenow.—La Batteriologia della congiuntivite dei neonati. (Soc. Ott. di Heidelberg, 1898).

— Lubarsch.—Neueres zur Entzundungslehre. (Deutsch. med. Wochenshr., 1898).

— Gosetti e Iona.—Congiuntiviti pseudomembranose e congiuntiviti difteriche. (Ann. d'Ott., 1898).

— Gelpke.—Bacterium septatum und dessen Beziehung zur Gruppe der Diphteriebacillen. (Karlsruhe, 1898).

— Axenfeld.—Pathologie des Auges. Bericht über die Jahren 1895 und 1896 in Ergebnisse der allegemeinen Pathologie und pathologischen Anatomie des Menschen under der Tiere. (Wiesbaden, 1898).

— Uhthoff.—Ueber der gegenwärtigen Stand der Backteriologie bei den Bindehaut und Hornhautenzündungen (1898).
— Bietti.—Congiuntiviti pseudomembranose da stafilococchi piogeni. (Pavia, 1898).
— Aubineau.—Deux cas de conjonctivite pseudomembraneuse staphilo-streptococcique. (Clinique Ophtalmologique de Brest, 1898).
— Kauffmann—Nouvelle contribution a la bacteriologie de la conjonctivite pseudomembraneuse. (1898).
— Albert Michel.—Contribution a l'etude bacteriologique de l'ophtalmie phlyctenulaire. (Ann. d'Oculistique, 1898).
— Gifford.—The diplobacillus of subacute catarrhal Conjunctivitis. (Annals of Ophthalmology, 1898).
— Bach und Neumann.—Bacteriologische, klinische und experimentelle Untersuchungen über Kerato-Conjunctivitis ekzematosa und Conjunctivitis catharralis (simplex)—(Arch. f. Aug., 1898).
— Schoute.—Ein Fall von Diplobacillenconjunctivitis. (Berl. Klin. Woch., 1898).
1899. Valude.—Action bactericide des larmes. (Ann. d'Ocul., 1899).
— Gonin.—De la nature microbienne des conjunctivites. (Revue medicale de la Suisse Romande, 1899).
— Fraenkel.—Le congiuntiviti purulente da meningococcus intracelluaris. (Zeitschrift. f. Hyg. u. Infectionskrank, 1899).
— Malfi.—Congiuntivite pseudomembranosa. (Arch. d'Ottalm., 1899).
— Addario.—Ricerche anatomiche e batteriologiche sulla congiunvitite tracomatosa. (Arch. d'Ott., 1899).
— Bietti.—Congiuntivite cronica da diplobacillo. (Pavia, 1899).
— Lehmann e Neumann.—Batteriologia. (Traduzione Italiana, Milano, 1899).
— Bistis.—Sur la lepre de l'oeil. (Arch. d'Opht., 1899).
— Demicheri.—Actynomicose conjonctivale. (Arch. d'Opht., 1899).
— Coppez.—Etudes sur la diphterie oculaire. (Arch. d'Opht., 1899).

The Denver and Gross College of Medicine.—This institution, formed by the union of the two medical schools heretofore existing in Denver, starts with a strong department in Ophthalmology. Dr. E. C. Rivers, for many years the professor of Ophthalmology in the Denver school, is President of the Board of Trustees of the new institution; and Professors Melville Black, D. H. Coover, and W. C. Bane, will also take part in the teaching of this branch.

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EDITORIAL.

Kinescopy.—When the focus for a pencil of rays falls behind or in front of the retina, the apparent position of the point from which the rays come, varies with the part of the pupil through which they are received. This is the basis of Schreiner's experiment. In that experiment separate points of light are seen through separated openings, so long as the focus does not fall on the retina. But when the rays are perfectly focused on the retina these separate points fuse into one.

This fact has been made the basis of some very ingenious methods for measuring ametropia, especially by Wm. Thomson of Philadelphia. It is the basis of the new method called kinescopy by its originator, Dr. S. Holth of Christiania, Norway, (*Annales d'Oculistique,* April, 1902). Dr. Holth allows the rays to enter the eye through a narrow aperture; and on shifting the position of this aperture before the pupil, an apparent movement of the object looked at occurs; except when the rays are perfectly focused on the retina.

In myopia the movement of the object appears to be in the direction in which the aperture is moved. In hyperopia, it appears to be in the opposite direction. For astigmatism the movement is most pronounced in the meridian of greatest ametropia. The amount of ametropia is measured by lenses placed before the eye, which prevent any apparent movement of the object. For astigmatism the ametropia is to be measured in both the principal meridians.

The difficulties to be overcome in making this a practical test, were in getting rapid movement within the limits of the pupil, and exactly in a certain desired meridian. They have been overcome by Dr. Holth by the invention and employment of an instrument, which he calls the Kinescope, in which a slit one or two millimeters wide or an opening one or two millimeters in diameter, is given a movement, limited to two or three millimeters before the pupil. The object looked at is either a white circle or a narrow white band on a black background.

Dr. Holth draws an interesting parallel between skiascopy and kinescopy, which may be regarded as a sort of subjective skiascopy. His method will be of most value for eyes with lowered acuteness of vision, especially from haziness of the media, and in some cases of malingering. Contrary to what might be supposed it is perfectly applicable in nystagmus.

The name, while open to some criticism on linguistic grounds, is brief, distinctive, and sufficiently suggestive of its meaning.

E. Jackson.

A CATALOGUE OF OPHTHALMIC PUBLICATIONS.

The regular issues of the journals of the world, devoted exclusively to ophthalmology, amount to more than twelve thousand octavo pages per year. The annual publications, omitting hospital reports, add over twenty-five hundred pages. In general medical journals the space devoted to distinctly ophthalmic topics is at least six thousand to eight thousand pages. To these must be added the variable number of theses, monographs, text-books, systems, etc., that are produced annually. At least one-half and probably two-thirds of these pages are taken up with quotations and abstracts; but allowing for this, the annual output of ophthalmic literature which purports to be original can not be less than ten thousand pages.

If the reader could have it all culled and arranged, he would still have to go over 28 pages a day to keep up with the current literature; to say nothing of what reading would be necessary in order to gain a decent acquaintance with the writings of previous years. This enormously rapid growth of the literature of ophthalmology ought to bring some appreciation of the importance of its arrangement and classification. As a preliminary to arrangement and classification, these writings must in some way be brought together. But bringing them together is only the first step, classification and arrangement are the more essential things in the building of a library.

For 30 years J. Hirschberg, of Berlin, the editor of the *Centralblatt f. Praktische Augenheilkunde,* has been collecting the material for a library. Last year he printed a catalogue of his collection, which he puts forward as a work preliminary to a systematic bibliography of the diseases of the eye. This catalogue is a book of four hundred and fifty-four pages. It includes a list of valuable works dealing with the history of medicine, but it is chiefly occupied with the literature of ophthalmology, in which it will take its place, as marking an era of great development. The most extended catalogue of the kind previously issued, is that of the library of the Ophthalmological Society of the United Kingdom—a work of 96 pages.

Hirschberg begins with a table of contents covering sixteen pages, which serves as a scheme of classification. Then comes the body of the catalogue; followed by an index of topics and an index of authors, both alphabetically arranged. In the scheme of classification, works upon the History of Ophthalmology are included in the first part, which deals with the history of medicine. In the second part he places the journals, then the text books and systematic treatises, with the smaller manuals, and the third part includes the works on optics. The text books are grouped by periods, one extending to 1860, another from 1860 to 1880, the last from 1881 to 1901. In each period they are grouped, according to nationality or language. To illustrate the completeness of classification, we may take among the monographs, those relating to the examination of the eye. The first group relates to acuteness of vision, next to testing the field, then ophthalmoscopy, and, lastly, skiascopy. The works on ophthalmoscopy are divided into those that deal with the optical and physiological principles involved; atlases of ophthalmoscopic appearances, and those that treat of special aspects of the ophthalmoscopic examination. Thus under the vessels of the retina, we have monographs on the reflexes, the forms, the anastomoses, aneurisms, pulsations of the vessels, and the cilio-retinal vessels.

Work such as Hirschberg has done in the publication of this catalogue is one of enormous importance. Its full value will only be appreciated in the future. Even its defects serve to emphasize the need for effort in this direction, and illustrate the difficulties which have to be overcome. Probably the omissions from the list are more noticeable with regard to American literature than in any other direction. Yet when one considers how much has been done, the only thought that such omissions suggest is that every member of the profession has this duty in the matter, to give what help he can. By supplying this collection with a copy of each of his own works, every American writer on ophthalmology would advance both a general professional interest, and his own personal reputation.

In the same way, what seemed to be defects in classification, when looked into merely illustrate the enormous difficulty of classifying such a mass of literature. This matter of classification should be more widely and carefully discussed. Then it rests with the editors of ophthalmic journals to insist that the literature should be better prepared for classification. If a contributor has something to say which is worth adding to the ten thousand pages, it is worthy of being placed as a distinct article, under a title that will give the best possible idea of its subject matter. This matter deserves very careful attention, for surely the arrangement and classification of ophthalmic literature are now of more importance than any increase in its volume.

Hirschberg's example should inspire others to work in the same direction. Work already done in this country, as shown by the report of the committee of the Section on Ophthalmology of the American Medical Association, at the recent meeting in Saratoga, gives good promise of the future. JACKSON.

VISUAL HYGIENE IN THE PUBLIC SCHOOLS.—The time has surely come when it should be demanded of the state that adequate and scientific hygiene must be provided if school attendance is made compulsory. Those who have in general terms advocated this have often shrunk from definite and detailed description of what this means for fear of the charge of self-seeking and self-advertising. We must conquer such squeamishness, because as we progress (or regress?) there is more danger from the great machine which with "grind" and "cramming" too often endangers the health and vision of the children. In every State the law should command that thoroughgoing testing of the eyes of every pupil should be assured by a competent refractionist, either supplied by the parents or furnished by the school authorities. The majority of young eyes are hyperopic and astigmatic, and lifelong harm may follow their use at a tender age without spectacles. There is an error all too prevalent already that eye-strain means overuse of a normal (or approximately normal) eye, whereas the term means the results of the use of an ametropic eye. A vast deal of the ill-health and bad results charged generally to schooling and overcrowding, such as anorexia, nervousness, denutrition, headache, etc., are solely due to ametropia, which itself is not a disease (except in high myopia) but which with use of the eyes speedily begets disease.—*American Medicine.*

REVIEW OF PROGRESS OF OPHTHALMOLOGY.

BACTERIOLOGICAL NOTES.

BY H. GIFFORD, M. D.,
OMAHA, NEB.

General Infection from the Conjunctival Sac.—The question of the possibility of a general infection occurring from the conjunctival sac has been the subject of much experimentation with widely differing results. Not long ago de Bono and Frisco, after much work on this point, concluded that various bacteria readily penetrated from the conjunctival sac and also from the nose to the interior of the eye, and on this basis proceeded to explain various obscure points in ocular pathology. Deep seated inflammations following sub-conjunctival ruptures, iritis in connection with the diseases of the nose, primary tuberculosis of the iris, and, most important of all, sympathetic ophthalmia, all appeared in a new light by virtue of these alleged discoveries. Their work has recently been repeated by Stock (*Klin. Monatsbl. f. Augenheilk.,* Feb., 1902). When he followed the technique employed by de Bono and Frisco he obtained similar results. A culture of the germ to be investigated was dropped into the conjunctival sac every two or three minutes for nearly an hour, the sac was then rinsed out with sterile water, a portion of the surface of the eye was cauterized and through an opening made at this point the aqueous or vitreous was sucked into sterile tubes and used for plate cultures with positive results. When, however, in order to insure greater security against the tubes being contaminated by fluid from the conjunctival sac, the eyeball was dislocated before cauterizing the surface, no growth was obtained in the great majority of cases. The same negative results were obtained after injecting cultures into the nose. Stock therefore concludes, undoubtedly with justice, that the startling results of de Bono and Frisco were due to a faulty technique.

On the Occurrence of Endogenous Toxic Wound Inflammation in the Eye.—Schimanura (*Ibid,* March and April, 1902) in testing the results of Tornatola and others who have claimed that an aspetic wound of the eye becomes inflamed without real infection, simply from the injection or occurrence of toxins in the blood, is driven to the conclusion that the positive results which have been obtained in the lower animals have occurred from an insufficient protection of the wound against external infection. In a number of experiments in which he produced extensive wounds of the interior of the eye with particular pains to prevent such infection, the injection of the toxins of the colon bacillus, the bacillus pyocyanus, and the yellow pus coccus either subcutaneously, into the peritoneal cavity or into a vein, produced no reaction in the wound in any case.

Polyarthritis Gonorrhoica from Ophthalmia Neonatorum.—Altland (*Ibid,* Apr., 1902, p. 294) adds another case of arthritis from a gonorrhoeal conjunctivitis. The patient's eyes became inflamed on the third day after birth and on the eleventh day, while the inflammation of the lids was rapidly subsiding, swelling and fluctuation of the knee joints was observed. These were punctured and from the exudate [character not clearly described] numerous colonies of a diplococcus which had all the characteristics of the gonococcus were obtained upon glycerine agar mixed with human blood. On media without the addition of human blood the germ did not grow. The secretion from the lids of the child was only examined microscopically, but showed the ordinary picture of the gonococcus.

A Yeast Fungus Pathogenic for the Conjunctiva.—A pathogenic yeast first described by Klein has been reinvestigated by Kohn (*Centralblatt f. Bacteriologie*, 31, No. 15, p. 745). A peculiarity of this germ is that besides causing various pathogenic processes in the lower animals it regularly, in rabbits, causes a purulent inflammation of the conjunctiva and the nasal mucous membrane when it is injected into the peritoneum or subcutaneously. The eye and nose symptoms appear late, after the germs have been taken into the blood and have begun to be excreted from the mucous membranes, in the secretions from which, the germ is readily detected. Strangely enough, in rabbits the direct application of the germ to the conjunctiva fails to cause inflammation, while in guinea pigs the direct application to the conjunctiva causes a violent inflammation accompanied by the formation of nodules in the palpebral portions of the membrane with secondary opacities of the cornea. These nodules contain numerous yeast cells in their interior. In some cases the conjunctivitis underwent a spontaneous cure, in others it resulted in the death of the animal. A pig, into the ear vein of which the germ had been injected, developed a violent purulent conjunctivitis, but the germ could not be found again in the secretion.

This yeast is described as being made up of cells which are generally round, of the size of a blood corpuscle, or two to three times that large; generally roundish but sometimes pear or club shaped;

growing readily on all the ordinary media and staining with Loeffler's methylene blue. The formation of spores has not been observed, but it is nevertheless extremely resistent to the ordinary physical agencies.

On the Growth of the Gonococcus on Agar-Agar.—The uncertainty attending the identification of the gonococcus was mentioned in a previous review in The Record, and it is still further increased by the work of Urbahn (*Archiv. f. Augenheilk.,* XLIV, Ergänzungsheft). It has generally been held that if a germ grew upon glycerine-agar, it could not be the gonococcus. Urbahn, however, finds that it will, under certain conditions, grow both upon glycerine-agar and in bouillon. Thalmann also (*Centralblatt f. Bacteriologie,* XXXI, 14) reminds the public of a paper published by himself in 1900, in which he insisted that the important point in the cultivation of the gonococcus upon simple media is the reaction. For determining this, litmus paper is unreliable and resort must be had to the phenolphthalein test. The most favorable condition for the growth of the germ is obtained by adding two-thirds of the amount of sodium hydrate solution required for complete phenolphthalein neutralization. The best reaction thus lies about half way between a litmus neutrality and that obtained by phenolphthalein. Thalmann contends that if this condition be observed the gonococcus will grow readily upon meat-water agar. In this he has been confirmed by Schomburg. S. examined 93 prostitutes of Dorpot who, after repeated examinations by other methods had been pronounced free from the disease; but the use of Thalmann's culture method showed that in every case the gonococcus was present.

The Bacteriology of Marginal Corneal Ulcer.—Zurnedden (*Archiv. f. Ophthalmologie,* 54, 1) has made a bacteriological examination of 33 cases of marginal ulcer. These he divides into two classes. First, those which are secondary to phlyctenular and purulent conjunctivitis; second, those in which the ulcer is not to be attributed to an affection of the conjunctiva. Of the latter, certain ones occur without any cause that Zurnedden has been able to discover; these include the chronic peripheral furrow-keratitis of Schmidt-Rimpler and perhaps also the marginal ulcer of Fuchs, which is supposed to depend upon the uratic diathesis. In the remaining ones, 33 in number, X. has found a bacillus which has some points of similarity to the colon bacillus but which, after careful consideration, X. decides to have been hitherto undescribed. It is about 0.9u long, 0.6u broad, immovable, often occurring in couples, forming neither spores nor capsules.

It is aerobic, growing easily upon most of the solid media, but very sparingly in bouillon; does not fluidize gelatine, produces no fermentation in saccharated media, coagulates milk, and produces no indol. Fresh colonies on agar have a peculiar bluish reflex, suggesting mother of pearl, later becoming more opaque and taking on a yellowish hue. On potatoes it grows as a thick, yellowish brown coating with very little tendency to spread out over the surface; injected into the tissues of the rabbit's cornea it produces an ulcer quite similar to that in man. The ulcers which this bacillus seems to cause are generally small, peripheral, frequently multiple losses of substance, without much tendency to extensive progression and only rarely accompanied by hypopyon. Noteworthy is their occurrence during the winter months, the great majority occurring between the first of October and the first of January.

Metastatic Ophthalmia in a Case of General Hydrophthalmus.—Roemer (*Klin. Monatsbl. f. Augenheilk.*, April, 1902) gives another illustration of the importance of the pneumococcus in the internal infections of the eye. His patient was a girl of twelve years with congenital hydrophthalmus, on whom, three years before, an iridectomy had been done in the right eye. This had healed without reaction and there had been no special trouble until about fourteen days before she was seen for the second time, when she began to feel sick, and, after ten days, to complain of pain in the right eye. On being taken into the hospital she was found to have a general febrile condition without its being possible to locate the source of the disease. A diagnosis of cryptogenetic sepsis or possibly beginning typhoid was made. The left eye was free from irritation, while the right was deeply congested and showed a greenish gray reflex from the vitreous. Above and to the outer side of the limbus there was a sub-conjunctival collection of pus which evidently had broken through the sclera from the ciliary body. The eye was enucleated and the patient died within 48 hours after the operation. Only a partial post mortem was allowed and while it confirmed the diagnosis of cryptogenetic sepsis, no especial starting point for the disease was found, unless the eye could be considered such. The examination of the eye showed a beginning panophthalmitis, evidently starting from the ciliary body, as the cause of which the pneumococcus of Fraenkel was found in great numbers with the microscope.

Metastatic Abscess of the Orbit Caused by the Colon Bacillus.—Loeser (*Zeitschrift f. Augenheilk.*, July, 1902) reports the first case of orbital cellulitis apparently caused by the colon bacillus. Hitherto this affection had been reported as the result only of the growth of staphylococci, streptococci, pneumococci and typhoid bacilli. The patient was a 65 year old woman in whom, after severe symptoms of hepatic colic, a double sided thrombosis in both legs occurred. Some time after, during another attack of hepatic colic, accompanied by a chill and fever, the left eye became painful and the typical symptoms of orbital cellulitis developed rapidly. This was complicated with a destructive ulceration of the cornea. An examination of the pus from the orbit (spontaneous evacuation through the conjunctiva) showed the presence of the colon bacillus. [It is not stated that no other germs were present nor whether the colon bacillus was found in great numbers.]

Clinical and Bacteriological Observations on Acute Conjunctival Catarrh.—Pes (*Archiv. f. Augenheilk.*, XLV, 3) in 76 cases of acute catarrh of the conjunctiva has found 29 cases of mixed infection and 47 of what he calls genuine infection. In the latter the cause in 19 cases was the staphylococcus pyogenes; in 17, the bacillus of Klebs-Loeffler; in 6, the diplococcus of Fraenkel-Weichselbaum; in 3, streptococcus pyogenes; in 2, the diplobacillus of Morax-Axenfeld. These unusual results are partly explained by the distinctly heterodox views of the writer. He considers the diphtheria bacillus, the xerosis bacillus (under its various names, pseudo-diphtheria, club shaped or septate bacillus), and the bacillus of Weeks as varieties of a single germ, which, while a constant or almost constant inhabitant of the conjunctival sac or meibomian glands may often assume a decided virluence. So far as including under one head all these germs except that of Weeks is concerned, Pes is in accord with some of the best authorities, among others Behring, C. Fraenkel and, unless we mistake, Loeffler himself, but his views regarding the bacillus of Weeks are so unusual that they must be regarded with great suspicion, although they are interesting as the conclusion of a man who has done a remarkable amount of careful work on the subject. Pes insists, rightly, that the term xerosis bacillus is unfortunate, since the germ has nothing to do with the xerosis. The term is a convenient one, however, to indicate that the germ has been cultivated from the eye and it will probably continue to be used until the unity of the various forms of the germ is generally recognized.

The unusual prominence given to the staphylococcus is in accord with his previous experience and to some extent with that of Gasparini. He regards the various forms of the pus coccus as merely varieties of a single germ.

On the Bacteriology of Croupous Conjunctivitis.—In view of the frequent communications asserting the identity of croupous and diphtheritic conjunctivitis, the article of Roscher (*Klin. Monatsbl. f. Augenheilk.*, July, 1902) is of interest. In 5 cases which he has examined bacteriologically the gonococcus was found in one; the diplococcus of Fraenkel in one; and the xerosis bacillus in three. The latter, of course, may have been simply a variety of the diphtheria bacillus, but as an indication of the tendency in some quarters still to maintain a distinction between the two it should be noted that the secretions in these last three cases were examined at the Hygienic Institute at Breslau and the report returned that they contained the xerosis bacillus but not the diphtheria bacillus.

At the recent meeting of the Medical Society of the state of Pennsylvania, Dr. Edward A. Shumway of Philadelphia reported a case of Severe Burn of the Eye and Face by Nitrite of Amyl, Dr. Edward Stieren of Pittsburg read a paper on Phlyctenular Keratitis Complicating Smallpox with Remarks on the Ocular Lesions of Variola, Dr. J. L. Borsch of Philadelphia read a paper on Corneal Tattooing, Dr. P. J. Kreis of Allentown read a paper on The Ability of the Eye to Withstand Effects of Injury and Disease, Dr. Walter B. Weidler of Lancaster reported a case of Bitemporal Hemianopsia and a case of Orbital Cellulitis Following Bowman's Operation with the Introduction of a Leaden Style, and Dr. Wendell Reber of Philadelphia read a paper on Epilepsy as Related to the Ocular Muscles.

Ocular Prothesis by Subconjunctival Injections of Vaseline.—In a comprehensive review of the subject, Rohmer gives the history, technique and complications of this procedure. Former proceedings to include a foreign body in the orbit failed, because it was impossible to bring the artificial eye to the level of the sound eye. The injection of this mixture of vaseline and paraffine is inoffensive and perfect in its result, since it utilizes an ideal conjunctival stump. The technique is simple and painless. There have been no bad results when a reasonable time has been allowed to elapse after operation, before the injection of vaseline. While the vaseline injected is generally absorbed very rapidly in animals, it remains unaffected in man. (*Revue Medicale de l'Est,* June 15th, 1902. (M. O.).—*The Philadelphia Medical Journal.*

ABSTRACTS.

ABSTRACTS FROM RECENT OPHTHALMIC LITERATURE.

BY G. E. DE SCHWEINITZ AND E. A. SHUMWAY.

A New Substitue for Silver Nitrate.—Albert C. Barnes and Herman Hille (*Medical Record,* May 24, 1902) have described a new compound, *argyrol,* or *silver vitelline,* which contains 30 per cent of silver, or twice the amount of any proteid silver heretofore produced. The solubility of this compound is remarkable, inasmuch as one ounce of it is freely and completely soluble in less than a dessertspoonful of water. The salt has been extensively used by genito-urinary surgeons with satisfaction. The discoverers predict that silver vitelline will be of great use in inflammatory diseases of the eye, such as ophthalmia neonatorum, purulent conjunctivitis, dacryocystitis, etc., in which silver is indicated and always employed, but in which a silver salt which is freely soluble, penetrating to the deeper tissues and non-irritating, is most desirable. Silver vitelline contains 30 per cent of silver, or about half the amount in silver nitrate, hence a 50 per cent solution of silver vitelline corresponds to a 25 per cent solution of silver nitrate, with greater penetrating action but without the caustic and irritating properties of the latter. In a note which accompanies a reprint of the author's article it is stated that the particular field of argyrol is purulent ophthalmia, and a strength of 25 to 50 per cent is advised.

Glioma of the Retina.—R. Earl Newton (*The Australasian Medical Gazette,* May, 1902) details a case of glioma of the retina with remarkable family history, and which bears upon the question of heredity as applied to this disease. A child of two years of age was brought to him completely blind as the result of bilateral glioma. The family history was as follows: The patient was the youngest of a family of sixteen children. Of these two had died within a month and two at birth of bronchitis. Four were still alive and well and the remaining ten had all been affected by glioma of the retina, and all of them except the present patient, were dead. None of the children lived beyond three years except one, which was operated on for unilateral growth and which lived to five years, dying of a local recurrence. In the only other one which underwent operation the tumor recurred in a few weeks and was rapidly fatal. Of the ten cases only three, including the two operated on, were unilateral and seven cases were bilateral, giving a percentage of 70 of bilateral cases. This

Newton thinks is interesting, as the percentage of bilateral cases is usually given as about 20. Of the seven children who died without operation the eyeballs ruptured in every case except one, which was bilateral, and this child died of cerebral implication. Five cases were males and five females.

The Ophthalmoscopic Diagnosis of Diseases of the Retinal Blood Vessels, Due to Arterio-Sclerosis.—E. Raehlmann (*Zeitschrift f. Augenheilk,* June, 1902) has found pathological changes in the retinal vessels in nearly one-half of a series of 210 cases of arterio-sclerosis. These consisted of white streaks along the vessel walls, aneurysmal or varicose dilatation, and local narrowing of their caliber. The last change was found in 46 cases, or 23 per cent, of which he gives the notes of 20 cases. Raehlmann believes that these localized diminutions of caliber of the vessels are of very great value in the diagnosis of sclerosis of the ocular and cerebral vessels, and thinks the percentage too low rather than too high. They are due to ingrowths of the intima, in which the cells at first predominate, while the overgrowth of connective tissue and elastic elements, as described by Hertel, is a later stage in the same process. The most common position in which they are found seems to be at the branching of the arterio centralis, on or near the papilla, where the vessel wall would be irritated by the force of the blood stream, when the vessel makes an abrupt turn. In several cases he describes small aneurysms on either side of a narrowed portion, in others rows of tiny aneurysms along the course of an otherwise normal vessel. Similar changes occur in the veins, particularly where the thickened artery crosses a vein in the retina; here the vein may appear to be entirely interrupted, either as a result of the compression of the vein by the greater blood pressure in the artery, or as a result of an overgrowth of the intima of the vein, due to the mechanical irritation of the arterial pulse. In nearly all cases investigated the changes have been found to be due to endophlebitis, rather than to thrombosis. These disturbances of the circulation may have no direct effect upon the function of the retina for a long time. When the visual disturbance appears, it comes as a rule very suddenly, as a result of insufficiency of nutrition (in heart failure, etc.), and unless accompanied by hemorrhage or infiltration in the macular region it may disappear completely. A very frequent form of infiltration occurs as a greenish white discoloration of the macula, which is almost without exception due to sclerosis of the vessels supplying this region. Another very constant phenomenon is the arterial and venous pulse. He calls especial attention to the venous pulse in the peripheral portions of the venous channels, which he believes to be a characteristic sign of the widespread disturbance of blood pressure in the general blood vessel system, and which is to be distinguished from the socalled physiological venous pulse. The latter depends upon the difference of pressure in front of and behind the lanima cribrosa, and especially upon the variations of pressure in the sinus cavernosus, produced by the pulse in the carotid, and is confined to the region of the papilla. The former, or "progressive venous pulse," occurs also in the periphery of the retina, as a widening of the caliber, appearing rhythmically along the entire vessel, immediately after the radial pulse wave, even in cases where the physiological pulse may be absent. It is a result of the transmission of the abnormally strong pulse wave from the arteries through the capillary system, and is particularly well marked where the blood pressure is much increased, as in aortic insufficiency or contracted kidney. These arterio-sclerotic changes are of very great value in the diagnosis of similar changes in the cerebral vessels, as they may occur in the territory of the internal carotid alone, and it is possible to determine with the ophthalmoscope evidences of disturbance of the cerebral vessels, even when the vessels of the general circulation are free.

The Preparation of the Lid Margins and of the Eyelashes for Operations on the Eye.—A. V. Pflugk in a series of experiments found that the eyelashes of the normal eye are, with few exceptions, thickly covered with microörganisms, the number of which is decidedly increased if conjunctivitis or blepharitis is present. After thorough washing of the lids and cilia with soap and sterile water, it was not possible to lessen appreciably the number of organisms, while carefully repeated rubbing of the lid margins with a sterile pad soaked in benzine (if the surrounding eyelids were covered) entirely removed the organisms from the cilia, and rendered the latter sterile. He believes that the benzine owes its efficiency to its fat dissolving action, the bacteria clinging to the fatty material encasing the hair bulbs. Other fluids like ether, alcohol, etc., have the same action, but they are much more irritating to the eye. In his clinic, after instillation of cocaine into the conjunctival sac, the lids and the neighboring skin are thoroughly washed with soap and sterile water; the soap is then washed off and the conjunctiva is carefully wiped out with a piece of cotton soaked in a normal salt solution. The neighborhood of the eye is then covered with a sterile mull veil, through an opening in which the lid margins and the cilia are rubbed vigorously with a piece of cotton wet with benzine. Directly before the operation, cocaine is again instilled and the place of operation is wiped off with cotton and salt solution. He has had very good results in over 2,000 cases, no irritative results, and believes that epilation, as well as cutting off the lashes as Schiötz and Haab have recommended, to be entirely unnecessary.

Contribution to Our Knowledge of Metastatic Abscesses of the Orbit (Bacterium Coli).—Loeser (*Zeitschrift. f. Augenheilk,* July, 1902) reports a case of metastatic abscess of the orbit, following an attack of gall stone colic, in which bacterium coli was found in pure culture. The orbital condition was accompanied by a severe exudative iridocyclitis, which resulted in destruction of the cornea, infection of the eyeball from without and phthisis bulbi. Loeser believes that both the orbital and uveal inflammations were due to embolism of the ophthalmic artery, part of the embolus lodging in its orbital and part in its bulbar branches.

The Introduction of Iodoform Into the Human Vitreous.—Hugo Wokenius (*Zeitschrift f. Augenheilk,* August, 1902) reports three cases of complicated perforating injuries of the eye, from Kuhut's clinic, in which iodoform was introduced into the vitreous, in the form of pellets of the compressed powder, with successful results. They believe that iodoform can be introduced in this manner, without injurious action, and that its use is advisable in connection with other rational surgical treatment, in all deep injuries of the eye, whenever infection is already present, or may be suspected.

Iodoform Poisoning With Especial Consideration of Its Eye Symptoms.—Mohr (*Archiv. f. Augenheilk,* July, 1902) reports two cases of papillo retinitis in children following the injection of iodoform emulsion for tubercular abscesses. Tubercular affection of the brain was excluded by the absence of fever, and by the recovery of the patients. As iodoform in these conditions is of very great value, he advises caution in its administration, and its immediate withdrawal if the slightest sign of poisoning makes its appearance.

Clinical and Bacteriological Observations on Acute Conjunctival Catarrh.—O. Pes (*Archiv. f. Augenheilk,* July, 1902) in 76 cases of acute catarrh of the conjunctiva, found mixed infections 29 times. In the 49 cases of simple infection, staphylococcus pyogenes (in its various forms) was found 19 times (23 per cent); Klebs-Löffler bacillus 17 times (22.36 per cent); Diplococcus of Fränkel-Weichselbaum 6 times (7.89 per cent); Streptococcus pyogenes 3 times (3.94 per cent), and Diplobacillus of Morax-Axenfeld twice (2.63 per cent). Pes considers the Weeks bacillus of acute conjunctivitis to be identical with the Klebs-Löffler bacillus.

REPORTS OF SOCIETIES.

CHICAGO OPHTHALMOLOGICAL AND OTOLOGICAL SOCIETY.

REPORT OF THE MEETING OF APRIL 8TH, 1902.

BY BROWN PUSEY, SECRETARY.

By invitation of the staff of the Illinois Charitable Eye and Ear Infirmary, the meeting was held at that institution.

The president, Dr. Wm. H. Wilder, presided.

Dr. H. M. Starkey reported a case of *Pulsating Exophthalmos, with Spontaneous Recovery.* This patient was shown by Dr. Starkey at a meeting of the society one year ago. At that time there was much displacement of the eye, and there was a soft compressible tumor at the upper, inner angle of the orbit; the orbital contents pulsated, and the aneurismal bruit was very pronounced. The condition was one of the results of an accident in which the man suffered a basal fracture.

At the present time the eye is in nearly normal position; there is no tumor and no pulsation or bruit. The optic nerve is atrophic. The vision equals 20/50+. The history of the patient, subsequent to the time that he was first shown before this society, reveals the fact that after several weeks, during which time there was no particular change, he was suddenly attacked with terrific pain, accompanied by greater protrusion of the eyeball, and swelling and redness of the lids, and inability to move the eye. The severe pain lasted about three days; it gradually subsided. The swelling gradually diminished; the pulsation and noise ceased.

Dr. Starkey considered the case as particularly remarkable (1) in the spontaneous recovery from orbital aneurism after it had persisted over one year, and (2) in the relatively good sight left. In explanation of the recovery, he said that it would appear that there was a rupture of the aneurismal sac into the orbital cellular tissue, that the blood thus thrown out formed a clot in such a way as to close the opening in the blood current, and that the clot was gradually absorbed and a cure effected.

Dr. Starkey also showed a patient with a *Suspected Tumor of the Chorioid.*

Dr. William A. Mann showed a case of *Tumor of the Optic Disc.*

Dr. H. W. Woodruff, of Joliet, Ill., reported a case of *Chronic Simple Glaucoma.* The right eye was blind; the left had vision of 20/40, and a greatly contracted field. The left superior cervical sympathetic ganglion and a section of the nerve were removed in April, 1901. The immediate result of this operation was contraction of the pupil. Six days after the operation there was well-marked ptosis, and normal tension, and improved vision. The vision became 20/20 and the field was enlarged. The patient was discharged, but returned seven months after the operation, when the vision was lessened, the field reduced and the tension elevated. Iridectomy was advised, but refused. Three months later iridectomy was done, and repeated one month later because of increased tension.

Dr. W. E. Gamble showed a patient in whom there had been *Detachment of the Retina,* which was relieved by *Spontaneous Reattachment* (almost complete).

Dr. Charles H. Beard showed a case of *Bilateral True Microphthalmia* in a married woman, aged 33. The woman's parents were not related. She is one of nine children; none of the other eight had any eye trouble. She is the mother of three healthy children, who have good eyes. The patient asserts most positively that, until a comparatively recent time, she had useful vision in both eyes, and that lately the sight has failed in both eyes. Vision of the right eye is perception of light; with the left eye fingers are counted at two feet.

The two eyes are so dwarfed that the diameter of the globes is only 15 millimeters and the diameter of the corneas 4 millimeters. The corneas are flush with the scleras and "may quite appropriately be likened in appearance to small, round, transparent spots occurring in the sides of two (otherwise) milk white agate marbles through which one sees the irides and the pupils." There are opacities in the media which seem to be situated in the lenses. There are no cysts, no opacities of the corneas, no colobomas of the uvea, no pupillary membranes, none of the usual complications or accompaniments of microphthalmus. There is no nystagmus nor strabismus. There are no other congenital bodily defects.

Dr. J. B. Loring showed *two cases of Neuro retinitis.*

Case 1. Age 52, male, laborer, practically blind, 30 hours' duration. Pupillary reaction to light present but slow, consensual present. V. R. & L. reduced to bare perception of light. The ophthalmoscope revealed in the right eye a slightly opaque disc, with blurred outline; the surrounding retina was a trifle milky in appearance, but there was no distortion of the vessels. The left eye presented the same changes only they were much more marked. The family and personal history is negative. Two days before coming to the infirmary he consumed three-fourths of the contents of a 16-oz. bottle of Paine's Celery Compound, and one bottle of Hamburg's drops, 1½ oz.,* taking of the former a small glassful and of the latter a teaspoonful each hour. He suffered severely from headache during this time, but was comfortable and slept soundly during the night. On awakening in the morning gray spots appeared on everything, which increased in size until whole objects became gray, and by 8 o'clock the sight was almost gone. He was placed on eliminative treatment—increasing doses of potassium iodide, calomel in small doses, laxatives, large quantities of water. Three days later, October 25th, V. R. perception of light, V. L. = shadows; 26th, V. R. = shadows, V. L. = 20/40; 27th, V. R. = 20/20-2, V. L. = 20/20. The fields were markedly contracted, only one or two meridians extending beyond 12° for form; red and green reduced to a mere central point. Gradual improvement followed, but the fields never became normal. He was discharged Nov. 7th, V. = 20/20 each eye: color fields extending to points between 10 and 20°, form 60 to 40° in right: in left 60 to 22°. The discs were slightly opaque and a little blanched at the temporal side, with a faint suggestion of blurring of the margins, particularly in the left; the retina in each eye showed but a slight loss of transparency.

One month later, Dec. 8th, he noticed some failure of sight in the left eye, becoming worse from day to day, and one week later the vision began to fade in the right eye. He at once returned for treatment. V. R. = 20/70, V. L. = fingers at three feet. The discs were decidedly pale and opaque, especially the left, some blurring about the margins; vessels reduced in size. Fields R. for form much contracted to points varying from 30 to 12°; red and green a mere

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*The Standard Formulary gives Paine's Celery Compound the following composition:

Celery seed	av. oz.	2
Red cinchona	" "	1
Orange peel	" "	¼
Corriander seed	" "	¼
Lemon peel	" "	¼
H. Cl	m.	15
Alcohol	fl. oz.	5
Glycerine	" "	3
Water	" "	4
Simple syrup	" "	4
		16 oz.

Koenig's Hamburg Drops, or Elixir of Long Life:

Aloes	gr.	200
Rhubarb	"	35
Gentian	"	35
Zedory	"	35
Spanish saffron	"	35
Water	fl. oz.	4
Alcohol	" "	12

To this is some times added 35 gr. of agaric.

central point. No field obtainable in the left eye. Eliminative treatment was immediately resorted to, including pilocarpine; and on Dec. 22d, V. R. =20/30, V. L. reduced to fingers at one foot. Jan. 22, V. R. = 20/20, V. L. fingers at 3 feet. From this time the vision gradually failed, and on March 4th it was reduced in the right eye to fingers at four feet, and in the left to three feet; blanching of the discs becoming more and more manifest, the blurring of the outlines becoming less manifest, the vessels more reduced in size, and the discs themselves assuming more the appearance of simple atrophy.

Case 2. Male, age, 22, laborer; complaining of great loss of sight. Pupils slightly dilated, reacting to light slowly; and to accommodation. Consensual reaction present. V. R. fingers at five feet: V. L. fingers at six feet. The ophthalmoscopic examination showed that the right disc was slightly opaque and pale, and had rather a gelatinous appearance. It was a little swollen, the margin was furred, and the surrounding retina for some distance was also opaque and gelatinous looking; the left disc was not so pale, but the margin was more fuzzy; the vessels in both were unchanged. No field chart was obtainable at this time. With the exception of an occasional spree on Saturday night on beer personal history is negative. Five weeks before being seen, some crystals of caustic soda flew into his right eye, producing slight redness for a couple of days. One week later sight began to fail in both eyes, and in a little over two weeks he was unable to attend to his work, which was that of preparing barrels to contain refined oil in a linseed oil mill. Among the barrels which he had to work over were many wood alcohol barrels, which, being clean, were selected in preference to others. The preparation consisted in gluing the inside of the barrel, which was closed, with the exception of a small faucet hole. He would remove the bung, drop a small electric light through it, place his eye to the hole and view the inside of the barrel. In this procedure he inhaled more or less of the fumes of wood alcohol. The glue was kept at a boiling point in a caldron containing about 40 gallons. He would pour a couple of gallons of this boiling glue into the barrel, close the bung and faucet hole, shake the barrel and allow it to remain for a few minutes, then remove the bung, and while the glue was draining out prepare another barrel. Then he would return the glue to the caldron, using it over and over again until it became so thick from the extraneous materials from the barrels that it was unfit for further service. During this process the glue became strongly contaminated with wood alcohol, the fumes of which he would frequently inhale.

He has followed this occupation a great portion of the time for nearly two years, working in a large, well ventilated room. Under potassium iodide, small doses of calomel, laxatives and water freely, the vision has slightly improved, reaching in the right eye 2/200, and in the left 6/200. On the 25th of March in the left eye a very markedly contracted field for form was obtained; red was reduced to a mere central point; green could not be discerned. March 29th fields were slightly extended: April 7th again contracted; perception for red being lost. No field was at any time obtainable in the right eye.

Dr. Loring said that in each case there is a distinct papilloretinitis, with possibly a retrobulbar neuritis; that both cases were seen early after the vision became involved—the first case within a few hours. Dr. Loring considered the points of particular interest in this case to be the sudden onset of blindness; the absence of all other symptoms in both cases, there being no tenderness or pain in the eyes or gastro-intestinal disturbances; the characteristic ophthalmoscopic appearance in both cases; the rapid improvement to perfect central vision in the first case, and the subsequent marked oscillations; the absence of central scotomas in either case. (The second case is recent and may yet develop a central scotoma.)

Dr. William H. Wilder exhibited the following cases: *Two cases of apparently congenital optic atrophy.* The first case is a boy, 13 years old, with a good family history, except one sister had poor vision and before the birth of these children, the mother had several miscarriages. With exception of occasional convulsions previous to his sixth year of age, he has been healthy. As soon as he was old enough to show any intelligence it was noticed that his vision was poor, and has not improved. His pupils respond to light and accommodation.

R. V. = 20/200, L. V. = 20/200, and unimproved by lenses. There is noticeable pallor of both optic discs apparently from primary atrophy; otherwise the fundus is normal.

Case 2.—A boy 9 years old and a brother of the above patient, has usually had good health, and presents no signs of disease. As in the case of his brother, his vision has always been poor.

R. V. = 20/200, L. V. = 20/200; unimproved by lenses. The ophthalmoscopic examination shows pallor of both dics, as in the other case, but no other fundus lesion. Unfortunately it was impossible, on account of restlessness and inattention, to get charts of the visual fields in these cases.

CASE 3.—*Congenital Coloboma of both irides: Atrophy of Optic Disc, Pterygium.* A man aged 45, with a large coloboma in the lower part of each iris, which enables one to see the rim of the crystalline lens. There is no coloboma of the lens or chorioid. Both discs are pale as from primary atrophy and the retinal arteries are somewhat narrower than normal. The vision of the right eye began to fail twenty years ago, after an attack of rheumatism; six years ago he noticed that he was losing the sight of the left eye.

CASE 4.—*Posterior Chorioiditis, showing new connective tissue development in the Chorioid.* Ophthalmoscopic examination showed posterior chorioiditis, with patches of atrophy and masses of pigment heaped up irregularly in the region of the macula. In addition there are small areas resembling wisps of fine cotton in the chorioid, not involving the retina, which are probably made up of new connective tissue that has developed in and around the exudate.

CASE 5.—*Orbital Cellulitis from infection from the Ethmoid Cells. Spontaneous recovery.*

CASE 6.—*Gonorrheal Ophthalmia resulting in a condition resembling Trachoma.*

NEWS ITEMS.

RUDOLF VIRCHOW.

Born October 13th, 1821, Died September 5th, 1902.

Dr. Alfred Graefe died at Innsbruck, September 1.

Dr. J. F. Dickson of Portland, Oregon, has started for an extended European trip.

Dr. Tatsuchichiro Inouye, Jr., a prominent Japanese ophthalmologist, died recently in Tokio.

Dr. Johann Deyl has been appointed professor of ophthalmology in the German University at Prague.

Dr. John F. Carpenter has been appointed instructor in Ophthalomology in the University of Pennsylvania.

Prof. Cirincione of Palermo, Italy, has been appointed professor of Ophthalmology in the University of Siena.

The Congress of the Italian Ophthalmological Association will meet this year at Florence from October 12th to 16th.

Dr. James Bordley, Jr., has been elected professor of Ophthalmology in the Woman's Medical College of Baltimore.

On the 7th of August Dr. Liersch, of Cottbus, Germany, celebrated the 50th anniversary of his entrance into the medical profession.

F. Despagnet, for many years editorially connected with the *Recueil d'Ophtalmologie*, died at Biarritz, Aug. 11th, 1902, at the age of 48 years. He was for fourteen years the chief of Galezowski's Clinic in Paris, and besides his editorial work, contributed numerous original papers to the above journal. From 1892 to 1897 he was secretary of the Paris Ophthalmological Society.

Prof. C. Schweigger, of Berlin, on the 13th of August, celebrated the fiftieth anniversary of his entrance upon his professional career. On the occasion of this anniversary he was decorated with the Order of the Red Eagle.

Dr. J. W. May, of Kansas City, died on September 24th at the age of 52 years. At the time of his death he was professor of Ophthalmology and Otology, and dean of the faculty of the College of Physicians and Surgeons of Kansas City.

Dr. Edmund K. Perrine, of Philadelphia, died on September 18th. Dr. Perrine was a graduate of the Jefferson Medical College, class of 1886. He was assistant Ophthalmologist to the German Hospital and Ophthalmologist to the Magdelen Home, Philadelphia, and to the Deaf and Dumb Institute at Mt. Airy, Penn.

Eduard Meyer died in Paris on the 9th of September. Dr. Meyer was a native of Dessau, Germany, where he was born in 1838. He established himself in practice in Paris in 1863. He was best known, probably, from his book, Diseases of the Eye, which was unusually successful, having been translated into German, English, Spanish, Italian, Russian and Polish.

During the recent visit of the Shah of Persia to Paris Dr. Galezowski had an audience with him in order to thank him for the favor he has shown to French medical practitioners in Persia. During the interview the shah announced his intention of founding at Teheran, Ispahan and Tebriz, three clinics for eye diseases under the direction of Dr. Israel Khan. Dr. Khan studied and took his degree in Paris, where he served as chef de clinique under Dr. Galezowski.

The Trustees of the New York Ophthalmic and Aural Institute (Knapp's) have secured a lot at the northwest corner of Central Park west and 64th street, where they propose to build a new home for the Institute. The cost and equipment of the new hospital building (including the land) are estimated at $500,000. This Institute was incorporated in 1869. In the first year of its existence 1,728 patients were treated and 228 more important operations were performed: in the last year 13,357 new patients were treated, and 2,622 such operations were performed. In all 243,793 patients have been treated (14,466 as inmates in the hospital) and 23,225 operations performed.

Dr. Aaron Friedenwald died at his home in Baltimore on August 26. Dr. Friedenwald was born in Baltimore in 1836. He began the study of medicine at the University of Maryland and was graduated from that University in 1860. After receiving his medical degree he went to Europe for further preparation and was a student of von Graefe and Ortt. On his return to America he located in his native city and entered into general practice and the special practice of diseases of the eye. Soon after the foundation of the College of Physicians and Surgeons of Baltimore he was elected to the Chair of Diseases of the Eye and Ear, and he held this position until his death. Dr. Friedenwald was a gifted medical teacher, and he was much interested in the advance of medical education. It was at his suggestion that the call was issued by the medical colleges of Baltimore to the medical colleges in general, for the foundation of the Association of the American Medical Colleges.

He took an active interest in public affairs and was at one time a member of the School Board of his city. He was also active in Jewish affairs and held many offices in Jewish organizations. Dr. Harry Friedenwald is his son.

Among his principal writings are:

1. Optic Neuritis. American Medical Journal, August 1, 1881.
2. Relation of Eye and Spinal Diseases.
3. The Transactions of the Medical and Chirurgical Faculty of the State of Maryland, 1883.
4. Paralysis of the Eye Muscles. Maryland Medical Journal, May 26, 1894.
5. History of Jewish Physicians.

The following papers were read at the recent meeting of the Ophthalmological Society held in Heidelberg:

Axenfeld (Freiberg i. Br.), *Intrascleral Nervous Ganglion.*

Baas (Freiberg i. Br.), *Iritis Serosa.*

Bach (Marburg), *The Pupillary Centres.*

Baenziger (Zurich), *Etiology of Panophthalmitis Following Injuries from Splinters.*

Best (Giessen), *Hereditary Chorioretinitis.*

Bielschowsky (Leipzig), *The Intervation of the Internal Recti Muscles as Lateral Rotators.*

Elsching (Vienna), *Histological Infarcts in the Optic Nerve.*

Franke (Hamburg), *The Diagnosis and Treatment of Retrobulbar Affections.*

Fuchs (Vienna), *Posterior Scleritis.*

Grunert (Tübingen), *Retinitis Septica.*

Greef (Berlin), *External Fovea in the Human Retina.*

Gullstrand (Upsala), *The Coloration of the Macula.*

Gutmann (Berlin), *Angelucci's Modification of Simple Cataract Extraction With a Comparison of Its Value With Other Operations.*

Hamburger (Berlin), *The Origin of the Aqueous Humor.*

Heine (Breslau), *Rupture of the Elastic Lamina in the Myopic Eye.*

v. Hippel (Heidelberg), *On the Origin of Congenital Fissures of the Eyeball.*

Kruckmann (Leipzig), *Iridocylitis Syphilitica.*

Levinsohn (Berlin), *The State of the Pupil After Resection of the Superior Cervical Ganglion.*

Liebrecht (Hamburg), *Pathological Anatomy Changes in the Optic Nerves in Brain Tumor and the Pathogenesis of Choked Disc.*

Peter (Rostock), *About Changes in the Ciliary Epithelium in Naphtha and Ergot Poisoning.*

Pfalz (Düsseldorf), *Clinical Experiences in Spasms of Accommodation.*

Pflügn (Bern), *The General Narcosis in the Bern Eye Clinic.*

Raehlmann (Münich), *About Trachoma Diseases of the Lid Edge and Cartilage.*

Roemer (Würzburg), *Further Observations Upon Sero Therapy in Ulcer of the Cornea.*

Roscher (Regensburg), *Intraocular Galvanic Caustic.*

Schirmer (Greifswald), *Upon the Secretion of Tears and Tear Drainage After Extirpation of the Sac.*

Liegrist (Basel), *The Socalled Spot-like Fatty Degeneration of the Optic Nerves in Panophthalmitis and Traumatic Iridocylitis.*

Stock (Freiburg i. Br.), *Experimental Contributions for the Localization of Injuries to the Interior of the Eye.*

Uhthoff (Breslau), *Contribution to the Visual Disturbances in Brain Injuries With Remarks on Functional Disturbances in Brain Diseases.*

Volkmann (Berlin), *Conclusions from the Use of the Eye Magnet.*

Vossius (Giessen), *Struma and Cataract. Two Rare Cases of Orbital Affection.*

Wagenmann (Gena), *Local Anaesthesia with Ethyl Chlorid.*

Wessely (Wurzburg), *Experiments Upon the Actions of Subconjunctival Injections.*

Wintersteiner (Vienna), *About Secondary Changes in Peribulbar Atheromatous Cysts.*

Wolff (Berlin), *The Theory of Skiascopy; Determination of the Refraction by Means of Skiascopy. My Electric Skiascope Ophthalmometer with Remarks on the Accommodation and the Spherical Aberration of the Eye. Bilateral Pathological Light Reflex from the Macula Lutea (Retinitis Serosa Centralis). Observation with My Electric Ophthalmoscope; a New Diagnostic Point in Bright's Disease.*

Axenfeld (Freiburg i. Br.), *The Pathological Anatomy of Orbital Fracture. New Formed Membraneous Opacities in the Vitreous.*

Bach (Marburg), *Demonstrations.*

Best (Giessen), *Demonstration Microscopic Preparations.*

Dimmer (Graz), *Demonstration of Photograph of the Fundus.*

Elsching (Vienna), *Demonstration of Microscopic Preparations.*

Gullstrand (Upsala), *Demonstration of an Instrument to Produce Rays About Luminous Points.*

Heine (Breslau), *Demonstration Stereoscopic Photographs.*

Herzog (Berlin), *The Analysis of the Internal Muscular Structure of the Eye.*

Leber (Heidelberg), *Demonstration of a Simple Illuminating Apparatus.*

de Lieto (Vollaro), *The Pathological Anatomy of the Gerontoxon.*

Pfluger (Bern), *Demonstration of Several Instruments.*

v. Pflugk (Dresden), *Phantom for Ophthalmoscopic Practice.*

Stock (Freiburg i. Br.), *Demonstration of Several Microscopic Preparations.*

Stoewer (Wittem), *Demonstration of an Instrument for Extraction of the Lens in the Capsule.*

Thier (Aachen), *Demonstration of an Orbital Tumor.*

Uhthoff (Breslau), *Demonstration of Anatomical Preparations of Diphtheria of the Human Conjunctiva.*

Wagenmann (Gena), *The Pathological Anatomy of Chorioidal Rupture and Iridodialyse.*

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ORIGINAL ARTICLES.

REPORT OF A CASE OF SPONTANEOUS PERFORATION OF THE CORNEA, IN THE CENTER OF A MACULA WHICH HAD EXISTED FOR MORE THAN SIX YEARS, THE PERFORATION NOT CLOSING UNTIL THE TWENTIETH DAY.*

BY C. A. VEASEY, M. D.

Demonstrator of Ophthalmology, Jefferson Medical College; Assistant Ophthalmic Surgeon, Jefferson Medical College Hospital; Ophthalmic Surgeon, Methodist Episcopal Hospital, Philadelphia, Pa.

Miss Blank, aged about 30 years, was referred to me on April 23rd, 1902, and gave the following history:

History.—A little more than six years before my examination the patient had an attack of purulent conjunctivitis, resulting in a corneal ulcer about the center of the lower inner quadrant of the right cornea, which healed without perforation, leaving a scar about 2 mm. x 1½ mm. in size. Since this attack of ophthalmia the patient had no ocular affection of any kind, and her general health was in excellent condition. On the above date, after making some preparations for a trip to California, while sitting at rest, she experienced a sudden "gush of water" from the right eye, followed by a sharp pain, which soon ceased. She observed that her vision was almost entirely lost immediately, and consulted her physician, Dr. A. H. Read, who very kindly sent her to me at once. In less than four hours after the accident had occurred I examined the patient and found a perforation of the cornea in the center of the old macula, through which the iris was prolapsed, forming a small bead, the corneal opening being at least 1 mm. in diameter. The anterior chamber was entirely abolished and the aqueous was leaking through the corneal opening. There was no history of a blow or injury, the patient had not been doing any violent work or lifting any heavy objects, and beyond slightly rubbing the eyelid with the fingers, no history of violence of any kind could be elicited. So far as could be determined with a high power magnifying glass the cornea was without any inflammatory symptoms.

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* Read in the Section on Ophthalmology of the College of Physicians of Philadelphia, October 21, 1902.

The patient was placed in bed, the eye thoroughly cleansed, and several unsuccessful attempts made to reduce the prolapsed iris. The prolapse, however, was finally reduced and kept in position by means of a conjunctival flap taken from the ocular conjunctiva after the manner described by Gamo Pinto, both eyes being bandaged. On the following day when the eye was dressed the flap was found to have left its position in the corneal opening and the prolapse of the iris was larger than before; the same method was therefore again attempted and the same conditions were found at the next dressing. Permission was then obtained to excise the prolapsed iris, which was done in the usual manner. The eye was cleansed daily, atropine was instilled and both eyes were bandaged, the patient remaining in bed until the eighth day. During this period atropine had no effect upon the pupil, though the anterior chamber seems to have been partially reestablished on the sixth day. It remained so for a few hours only, as it was empty at the next dressing. On the eighth day the patient was permitted to get out of bed, a very light dressing being placed over the eye. On the eleventh day the edges of the corneal wound were touched with the solid stick of nitrate of silver. This gave rise to some conjunctivitis, which soon subsided. On the seventeenth day the anterior chamber had partially reformed, but would at times empty itself with a slight gush of aqueous. A strong solution of nitrate of silver was now applied to the wound daily for several days, and the patient was given internally thyroid extract in addition to the quinine, iron and strychnine which she had been taking from the beginning. On the twentieth day the anterior chamber was found fully restored. No leaking could be detected, and the pupil was moderately dilated, the edges of the coloboma of the iridectomy being partially caught in the posterior portion of the former corneal opening. From this time on the patient continued to do well, and was discharged two weeks later with a vision of 6/12, the eye simply showing a somewhat darker area in the center of the old macula.

The patient has been seen from time to time since her discharge, the last examination having been made on October 6th, and the eye has continued well.

It seems to the writer that the most plausible explanation of this very unusual accident is that the corneal macula was so gradually thinned by a degenerative process, not sufficiently active to produce any changes that could be observed by the patient or detected with the corneal loupe, that the intraocular tension finally caused perforation at the point of least resistance. The tardiness with which the perforation healed showed that the vitality of the surrounding cornea was markedly impaired.

A SIMPLE AND EFFECTIVE METHOD OF DETERMINING THE DEGREE OF DEVIATION IN SQUINT.*

BY NELSON MILES BLACK, M. D.,
MILWAUKEE, WIS.

Strabometry is by no means the least important item in the examination of cases of squint, for, to be on a basis to properly treat a case and to know as the treatment progresses, whether there is any change in the deviation is important, as even a slight diminishing of the degree as the case is seen from time to time, is in favor of a continuance of treatment instead of resorting at once to operative measures; be the outcome of the treatment what it may, parallelism of the visual axes with or without an operation.

The various methods of measuring the degree of deviation, such as, the perimeter test, cover or screen test, Priestly Smith's tape measure test, Hirschberg's test, the linear measure test, the prism test, etc., are not difficult if the patient is old enough to appreciate what is being done and give his assistance. They all take time, however, and what is more important, the largest percentage of squint cases is in children under six years of age and the co-operation of these little ones is not to be had in measuring the deviation, so we must have a method that is simple, fairly exact, that will quickly determine the degree of deviation before the attention is attracted elsewhere, and most important, something that can be used with the youngest child.

The method suggested here is not original with me but a modification of that advocated by Mr. Claud Worth of London. The principle is derived from the perimeter test and corneal reflex; instead of the arc, the tangent of a circle is used and degrees marked off in this tangent. The apparatus consists of a wooden base supporting an upright, at right angles to the center and top of this upright is attached an arm which can be turned to the right or left at the center of the upright: on the back of this arm a scale of degrees is marked. The light is a long miniature electric lamp that can be flashed on and off with a push button. On the arm is a small marker to attract the patient's attention.

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* Read before the Chicago Ophthalmological Society.

The scale is made by extending the radii through the arc of the circle to the tangent, the radius being 60 cm. or the distance the patient's eyes from the light.

To measure the deviation, the patient is placed in front of the apparatus with the elbows resting on the table. The distance of the eyes being regulated by a cord to which is attached a ring which is held on the little finger at the orbital margin; the light being flashed on will at once attract their attention, the position of the corneal reflex is noted in the fixing eye and the patient directed to look at the marker, which is moved to or from the upright until the reflex of the deviating eye is relatively in the same position as it was in the fixing eye when looking at the light; by directing the patient to look first at the light and then at the marker the reflex can be located exactly in the deviating eye and the degree read off on the back of the arm opposite the position of the marker. With small children or babies, the mother or nurse holds them on the lap with the child's head between the hands; a match is lighted and held over the marker at which the baby will naturally look, this is moved back and forth, the electric light being flashed on and off from time to time until the corneal reflex is in relatively the same position in the deviating eye. The light can be flashed on and off so quickly that the child cannot have time to change its gaze from the lighted match to the electric light.

The advantages of the apparatus are its simplicity, the rapidity with which the degree of deviation can be determined, the exactness which is sufficient for all practical purposes and the fact that it can be used with the youngest child as easily as with the adult.

105 GRAND AVE.

THE CORRECTION OF MYOPIA.*

BY A. C. FRIEDMANN, M. D.,
COLORADO SPRINGS, COLO.

The last ophthalmological meeting in Heidelberg gave one almost the impression that the under-correction of myopia belonged to the past. Not a single voice was heard to defend a method which had been practiced among the oculists of the whole world for a space of time equal to the one of scientific ophthalmology. The whole statistics of Pfalz and Heine, the strong advocates of the new cause, do not amount to 200 cases, while the number of under-corrected patients must have been many thousands. How much easier therefore for them to see disadvantages of the old method practiced for decades, than to conceive during their short period of practice the weak points of the new one. Having been assistant of Prof. Koenigshoefer for several years I naturally became a follower of the principle of under-correction. Our rule has been to correct every myopia from one diopter upward so that the lenses were about one or one and one-half diopters below the absolute myopia if the comfort of the patient allowed us to do so and if there were no affections of the fundus. Myopia about six or seven diopters we corrected just enough to give the patient a satisfactory eye-sight for average daily work, and left part uncorrected in order not to strain the accommodation and to avoid micropia. Concave lenses above 10. D. are prescribed only exceptionally. For special purposes, as the use in observation cars, theaters, and so on, we allowed them to wear a supplement in the way of lorgnon, giving them purposely the most uncomfortable form of glasses in order to be assured they were not using them unless it was absolutely necessary.

In correcting myopes for reading we gave them a lense 2½ diopters weaker, in order to enable them to see plain up to 40 cm. The combinations myopia with astigmatism and insufficiency of the recti-interni were always carefully considered.

Especial care was taken to make it impossible that cases of spasm of accommodation should not be mistaken for myopia and no concave glasses were given to youthful individuals without applying a mydriatic for several days in succession. We used to distinguish our cases as to the probability or improbability of progression of myopia and in cases where we felt satisfied that the fundus conditions were normal we gave quite frequently full correction when the patient seemed comforted by it.

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* Read before the Colorado Ophthalmological Society, April, 1902. For discussion, see page 594.

One of the principal things was to keep every case of myopia, especially of youthful individuals, under steady observation and not to allow any longer time than one-half year at the utmost to elapse before repeating his examination. We often found then that the myopia had somewhat decreased, in which case we followed by giving weaker glasses.

Myerhof reports a case of a youthful myope which showed in 1898 11.D. and was corrected with 6.D. in 1899, the same patient had with the same eye-sight 10.D. and the following year 9.D. it seemed rather improbable, he says, that with myopia of 11.D. where the back part of the bulbus is quite considerably stretched and lost its elasticity almost entirely, the fovea centralis should have moved more than 0.6.mm. to the front.

In case the same refraction was found, no change was made. When we found that the myopia was increased—subjectively—we gave a mydriatic and when the objective results did not harmonize with this increase, we continued the instillations of mydriatics, generally atropia 1 per cent for quite a length of time, even in adults up to 38 or 39 years of age, and had frequently the satisfaction to see that the increase of myopia was only a seeming one and that the same or even weaker lenses were accepted afterwards.

This has been the practice of almost all German oculists and up to the present time they have not deemed it necessary to change their standpoint, although Foerster, Risley and several others have called the attention to the full correction from time to time.

It has been said that only for theoretical reasons the profession has not followed any of these impulses, but according to my experience I would say that just the practical side of it—id-est-the—discomfort in wearing full correction for distance and very much more for reading determined me like the others to look skeptically on the supposed excellent results of full correction.

The strongest point of the new direction is the possibility of diminishing the progression of myopia by full correction. Several points have to be considered when we speak of progression of myopia. One of the most important is the age of the patient, and while we used to believe that the age from 14 to 21 years was the most dangerous, we are now convinced that the one from 6 to 15 is by far the more dangerous.

The degree of myopia is another very important factor and especially the cases of more than 10 diopters show the tendency to pernicious progression.

The heredity of the patient and his occupation are other features to be considered. The period during which we must observe our patients, ought to be an unlimited one. Now if a myopia progresses in one year from 4 to 6 D. it is to be considered a rapid one; while one progressing the same amount in 6 or 8 years is slow and not very dangerous. If a myope of 14 D. progresses to 16 D. it means anatomically by far more than one progressing from 4 to 6 D. All these points have to be shown in great statistics and if Dor in Lyons really has fully corrected since 10½ years he ought to bring out a statistic showing his results in these and many other respects. The small publications of Ruckert and others with their selected cases of low degree myopia are not decisive. These statistics should be put up as Meyerhof says, "sine ira et studio" they should give us reports of the entire childhood of the patient and ought to take in a period of not less than 4 or 5 years. The advantages of full correction need not be explained in detail in this paper, as Dr. Jackson will do so sufficiently. If full correction does not do harm it surely has great advantages in giving to the myope the natural conditions, for instance, of accommodation and convergence, if we have a chance of making the myope emmetropic we surely will grasp it with great readiness. Let me read to you a letter which I received from Knapp of New York on the subject.

"Dear Doctor Friedmann:

"Full correction in myopia with good vision and no dangerous fundus changes is, in my opinion, the correct treatment. Abnormal, i. e., morbid conditions, impairment of sight, rarefaction of choroid, congestion or hemorrhage in fundus, vitreous opacities, macular corneae, etc., will prohibit full correction in many persons; the diminution of print and other fine work requires more exertion to see clearly with a strong than with a weak concave glass. My rule is to enable such people to read about 20/30, and let them wear these glasses for all ordinary purposes, allowing the full correction for galleries, theaters, prospect cars, etc. Persons that have used full correction in their younger years, I frequently advise an undercorrection for fine, near work when they are 38 years of age or more. The patients' habits, occupations and preferences should also be considered in the choice of glasses. H. Knapp."

I shall expect more proofs of the harmlessness and advantage of full correction of myopia and shall adopt it then most willingly.

THE FULL CORRECTION OF MYOPIA.*

BY EDWARD JACKSON, M. D.,

DENVER, COLO.

The tendency of myopia to increase is not the only thing about it that needs to be combatted. Yet myopia is serious just as it becomes, or may become, of high degree. All cases are, at some stage of their history, progressive. Increase of myopia is closely related to those degenerative changes that constitute its other chief dangers. If the tendency to increase of refraction can be permanently checked early, the greatest service that is in our power has been rendered the myopic patient.

The service next in importance that can be rendered him, is to remove in large measure the disability that myopia causes, enabling him to see approximately, as does the emmetrope. For the great mass of myopes both of these services are rendered by fully correcting their myopia and instructing them to wear their correcting lenses for both distant and near vision.

This matter needs to be discussed because the teaching of some very high authorities in ophthalmology, supported by plausible theorizing, but not by any adequate published experience, has done and is still doing great harm to those afflicted with myopia; by deterring their professional advisers from resorting to the measures that would give them the greatest help, and most effectively guard them against the dangers of the future.

In 1891, in a paper read before the Ophthalmic Section of the American Medical Association, I urged: "That for the myopic as for the hyperopic eye, the most favorable conditions for labor that can be imposed on it are, in general, those under which the emmetropic eye works, most nearly brought about by the wearing of the full correction."

This brought out the objection voiced by one of the most respected members of the Section, that "it is dangerous to give the full correction in myopia." This led me next year to report to the American Ophthalmological Society, all the cases of myopia treated by the constant wearing of the full correction, except when modified for presbyopia, that I had been able to follow and carefully remeasure after a period of three years. At the same time Dr. George C. Harlan reported 13 cases of high myopia, 4 D. and upward, similarly treated, and followed for periods of five years or longer.

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* Read before the Colorado Ophthalmological Society, April, 1902. For discussion see page 594.

I am now able to report on the subsequent histories of some of the cases reported in 1892, and to add to them 35 others. These 62 cases include 123 eyes, one patient having one eye blind with congenital cataract. They have been followed and carefully remeasured after periods varying from three to seventeen years; the average being five years and eight months.

Of these 123 eyes 93 have remained without change in the amount of their myopia, or the increase or diminution in the myopia has been less than 0.50 D. In 10 eyes the myopia increased 0.50 D. In 3 eyes the myopia diminished 0.50 D. In 13 eyes the myopia increased more than 0.50 D., the average increase being 1.50 D. In 4 eyes the myopia diminished more than 0.50 D., the average diminution being 1. D. The percentages are:

Stationary	75.6 per cent.
Increased	18.7 per cent.
Diminished	5.7 per cent.

In but 6 eyes of the whole series was the acuteness of vision diminished to even the slightest extent; and in none of these cases did the loss amount to more than the perception of one line of letters, as from 4-4ths. to 4-5ths. On the other hand there was marked improvement of the visual acuteness of 16 eyes, under the constant wearing of correcting glasses; and for some eyes the acuteness of vision was doubled.

But it is in early life that myopia is most likely to be progressive. Hence the value of any measure for rendering it non-progressive is best demonstrated by noting its efficiency when applied to young myopes. The following table gives the earliest and latest refraction observed in each eye, of all patients under twenty years of age, with the acuteness of vision obtained.

The first column gives the case number, the second the sex, the third the age of the patient when the constant wearing of correcting lenses was commenced, the fourth the first correcting lens and the acuteness of vision obtained with it, the fifth the number of years elapsed, and the last the final correction and acuteness of vision. For each case the right eye is given first and then the left.

1	M	6	−7. ⊃ −0.75 cy. ax. 180°=$\frac{4}{12}$ −7. ⊃ −0.50 cy. ax. 180°=$\frac{4}{12}$	9	−6.75 ⊃ −0.50 cy. ax. 180°=$\frac{4}{8}$ −6.25 ⊃ −0.37 cy. ax. 170°=$\frac{4}{8}$
2	F	9	−2.75 ⊃ −0.50 cy. ax. 150°=$\frac{4}{4}$ −0.37 ⊃ −0.50 cy. ax. 15°=$\frac{4}{4}$	5	−3.25 ⊃ −0.50 cy. ax. 140°=$\frac{4}{4}$ −0.87 ⊃ −0.37 cy. ax. 60°=$\frac{4}{4}$
3	M	9	−0.75 ⊃ −0.50 cy. ax. 10°=$\frac{4}{4}$ −0.75 ⊃ −0.50 cy. ax. 180°=$\frac{4}{4}$	10	−0.87 ⊃ −0.50 cy. ax. 15°=$\frac{4}{4}$ −0.75 ⊃ −0.87 cy. ax. 175°=$\frac{4}{4}$
4	F	11	−6. ⊃ −0.50 cy. ax. 90°=$\frac{4}{5}$ −6.=$\frac{4}{5}$	5	−6. ⊃ −0.50 cy. ax. 90°=$\frac{4}{5}$ −6.=$\frac{4}{5}$
5	M	11	−1.75 ⊃ −0.75 cy. ax. 180°=$\frac{4}{4}$ −0.62 ⊃ −0.37 cy. ax. 5°=$\frac{4}{4}$	3	−2.75 ⊃ −1. cy. ax. 180°=$\frac{4}{4}$ −2. ⊃ −1. cy. ax. 5°=$\frac{4}{4}$
6	F	12	−0.50 ⊃ −0.25 cy. ax. 110°=$\frac{4}{4}$ −0.25=$\frac{4}{4}$	6	−1.75 ⊃ −0.62 cy. ax. 110°=$\frac{4}{4}$ −1. ⊃ −0.25 cy. ax. 60°=$\frac{4}{4}$
7	F	14	−2.75=$\frac{4}{5}$ −1.50 ⊃ −0.50 cy. ax. 35°=$\frac{4}{4}$	8	−4.50=$\frac{4}{5}$ −3. ⊃ −0.37 cy. ax. 25°=$\frac{4}{5}$
8	F	14	−5.75 ⊃ −1.50 cy. ax. 180°=$\frac{4}{6}$ −5.75=$\frac{4}{6}$	7	−5.75 ⊃ −2.50 cy. ax. 5°=$\frac{4}{6}$ −6. ⊃ −0.75 cy. ax. 175°=$\frac{4}{6}$
9	F	15	−1.50=$\frac{4}{3}$ −0.25=$\frac{4}{3}$	5	−1.25=$\frac{4}{3}$ −0.25=$\frac{4}{3}$
10	F	15	−5.50 cy. ax. 180°=$\frac{4}{12}$ −5.50 cy. ax. 180°=$\frac{4}{12}$	6	−5.50 cy. ax. 175°=$\frac{4}{12}$ −5.50 cy. ax. 5°=$\frac{4}{12}$
11	M	16	−1.75 ⊃ −0.37 cy. ax. 80°=$\frac{4}{3}$ −1.75=$\frac{4}{3}$	5	−2. ⊃ −0.37 cy. ax. 65°=$\frac{4}{3}$ −1.75 ⊃ −0.37 cy. ax. 80°=$\frac{4}{3}$
12	F	16	−0.50 cy. ax. 180°=$\frac{4}{4}$ −0.50 cy. ax. 180°=$\frac{4}{4}$	6	−0.25 ⊃ +1.12 cy. ax. 90°=$\frac{4}{4}$ −0.50 ⊃ +0.62 cy. ax. 85°=$\frac{4}{4}$
13	M	17	−7.25 ⊃ −0.75 cy. ax. 180°=$\frac{4}{4}$ Congenital cataract, light perception.	5	−8. ⊃ −0.75 cy. ax. 7°=$\frac{4}{4}$
14	F	17	−1.25 ⊃ −0.75 cy. ax. 102°=$\frac{4}{4}$ −2. ⊃ −1. cy. ax. 80°=$\frac{4}{4}$	3	−1.50 ⊃ −0.75 cy. ax. 100°=$\frac{4}{3}$ −2.25 ⊃ −0.87 cy. ax. 75°=$\frac{4}{4}$
15	F	17	−3.75 ⊃ −0.50 cy. ax. 10°=$\frac{4}{5}$ −4.=$\frac{4}{4}$	5	−4.25 ⊃ −1. cy. ax. 6°=$\frac{4}{5}$ −4.25=$\frac{4}{3}$
16	M	17	−4.25=$\frac{4}{5}$ −3.75=$\frac{4}{5}$	11	−7.75 ⊃ −0.75 cy. ax. 55°=$\frac{4}{4}$ −6.75 ⊃ −0.75 cy. ax. 105°=$\frac{4}{4}$
17	F	17	−3.50 ⊃ −0.25 cy. ax. 180°=$\frac{4}{4}$ −0.37 ⊃ cy. ax. 5°=$\frac{4}{4}$	3	−2.50 ⊃ −0.75 cy. ax. 170°=$\frac{4}{4}$ −0.50 ⊃ +0.75 cy. ax. 95°=$\frac{4}{4}$
18	F	19	−2.25 ⊃ −0.50 cy. ax. 5°=$\frac{4}{4}$ −2.50 ⊃ −0.25 cy. ax. 165°=$\frac{4}{4}$	7	−2.25 ⊃ −0.75 cy. ax. 15°=$\frac{4}{4}$ −2.50 ⊃ −0.62 cy. ax. 165°=$\frac{4}{4}$

It will be noticed that these patients remained under observation for periods varying from 3 to 11 years, the average being 6 years. Of these 35 eyes, 60 per cent never became more myopic after beginning to wear correcting glasses; and while in 14 eyes the myopia at some time increased more than 0.25 D., in 4 eyes it diminished more than that amount.

These statistics are sufficiently convincing when compared with those furnished by the non-correction or partial correction of myopia. But they are less striking than the facts brought out by a study of individual case histories. In nearly all these cases the myopia was clearly progressive, immediately before the correcting lenses were adopted. Case 2 had no myopia, and full vision without lenses, for either eye, when I had examined her eyes less than two years previously. After putting on glasses they remained for three years without any change of refraction. In case 13, also, the refraction had been carefully measured three years before he began wearing glasses, and in the interval the myopia had increased 3. D.

The progress of case 16 was extremely instructive. After having been practically stationary for three years, the myopia increased to the amount indicated in a few weeks of profound anemia following a hemorrhage. This patient came of a highly myopic family, and was continuously engaged in close literary work. Yet after regaining his general health and having his increased myopia corrected, he had no farther increase of refraction.

In nearly all of the cases that showed any increase of myopia there were periods when it remained stationary. Then after some special strain the myopia would become progressive, and would continue so until it was re-corrected; when it would again become stationary.

Not included above, because I did not make the original measurements of his refraction, is a case that indicates how even in extreme myopia the full correction has no tendency to cause increase. This patient believed that at ten years of age his sight was perfect. He began to be near-sighted at twelve or fourteen. His defect of vision rapidly increased. When nineteen, and a student at Harvard College, he was given glasses by Dr. Widdifield, the strength of which he never had changed since. He entered the ministry, and remained a voracious reader throughout his life; in spite of the fact that his vision slowly grew worse. He came to me at the age of forty-nine. The lenses he had been using for twenty-nine years were: right and left concave 20.D. spherical. His full correction at that time was:

Right -20. sph. giving vision 4/20
Left -20. sph. giving vision 4/30

With these lenses he had binocular vision. The ophthalmoscope showed slight striation and haziness of the lenses, and extensive areas of choroidal thinning, pigment deposits, and advanced atrophy.

Here was a man with very high myopia, which had previously been progressive, leading a life that favored the farther increase of myopia, with the choroidal changes to be expected in such a case; and yet at the end of 29 years the myopia remained fully corrected.

The statistics given above, are not sufficiently extensive to justify conclusions regarding the exact proportion of myopias that will cease to increase under full correction. But it should be remembered that these are the comparatively few cases so treated in private practice, that have returned for remeasurement after a period of at least three years. A great many more cases have been treated in the same way, and some of these are known to be still wearing the same correcting lenses after five or ten years. But they have not returned for remeasurement.

On the other hand, the writer knows of no statistics, even as extensive as these, that can be said to point to an essentially different conclusion. In the Klinische Monatsblatter fur Augenheilkunde for March, 1902, statistics of the progress of uncorrected or under-corrected myopia are published by P. Schreiber of Magdeburg, A. Roscher of Breslau, and M. Meyerhof of Bromberg. Their patients were mostly under twenty years of age. The proportion of cases in which the myopia did not increase was found by Schreiber to be less than 21 per cent, among patients under observation an average of six years. Among Roscher's patients, 39 per cent showed no increase of myopia and among Meyerhof's patients, 38 per cent showed no increase. But these patients were under observation only about two-thirds as long. These figures may be compared with the 60 per cent which I found stationary under full correction.

But at the Heidelberg Congress last year still more striking statistics were presented by Pfalz of Dusseldorf, and Heine of Breslau. The former presented three sets of cases, twenty-five that had worn no correction for near work, eighteen that had worn an under-correction, and thirty-eight that had worn the full correction for everything. These patients were all under twenty years of age. Of the eighty-six eyes that had not worn a full correction, eighty-five showed some increase of myopia. Of the seventy-six eyes that had worn a full correction, six showed some increase in myopia. In either case, the eyes had been under observation on an average of about three and one-half years. Heine's patients were all young, with myopia of over 6.D. Of seventeen who used an under-correction, five experienced no increase of myopia. Of thirty-one who used a full correction, twenty-seven had no increase of myopia.

The discussion elicited by the papers of Pfalz and Heine, was equally significant. There took part in it Dor, Hess, Wicherkiewicz, v. Hippel, Straub, Schwarz, Lucanus, Axenfeld, Mayweg, Uhthoff, Gullstrand, Fuchs, Wolff, and Krückmann; and everyone spoke favorably of the full correction of myopia. This is especially important because it is upon the authority of the older German ophthalmologists that the practice of not correcting myopia has been largely based. Indeed, upon examining the literature of the subject, authority and theoretical considerations appear to be the chief supports of this practice.

Graefe observed that with the effort to accommodate the eye, there occurred increased pulsation of the retinal veins, as observed by the ophthalmoscope. Therefrom he reasoned that accommodation increased the intraocular tension, and must be bad for myopia. But in this observation, which I have often confirmed, accommodation cannot be disassociated from convergence. Even if convergence is prevented, the effort to accommodate is certainly attended with an increased tension of the extraocular muscles causing heightened tension of the eyeball from external pressure. If the same observation is made upon an eye fully under the influence of a cycloplegic, the same increased pulsation of the retinal veins can be noted. On the other hand, I have encountered one case of ophthalmoplegia externa, in a patient possessing some accommodation; and the strongest effort to accommodate produced no change in the perceptible venous pulse.

If it be allowable to meet theoretical considerations by theorizing, it can be pointed out that the function of normal accommodation is probably closely associated with the general nutrition of the eyeball. Certain degenerative changes in the choroid are so frequently seen in the eyes of elderly people that they are often spoken of as senile. Very similar alterations are frequently noticed in myopic eyes. In both cases, the eyes have ceased to employ normal accommodation. It is true that abnormal accommodation may cause choroidal changes such as often accompany progressive myopia. But between normal and abnormal accommodation, a clear distinction should be made. It is glaringly incorrect to assume that what is true of the one is necessarily true of the other. Then too, the myopic eye, uncorrected, is very liable to suffer from abnormal accommodation.

Differences in the distance of the different parts of a line of print from the eye, differences of distance of the same near-point from the two eyes, and differences of refraction between the two eyes, very general in myopia, all entail abnormal accommodation.

The most important cause of myopia appears to be the pressure on the globe of the extraocular muscles. This is greatly increased by use of the eyes for near work, and the uncorrected myope can use his eyes for nothing else. To permit and encourage the comfortable use of the eyes for distant vision, is the first indication to be met in the treatment of myopia. It is met by the constant wearing of the full correction, and in no other way. This theoretical consideration is fully supported by all published experience, and until opposing experience of quite a different order from any now extant has been brought before us, we are justified in holding that this point in the treatment of myopia has been settled. Of exceptions to the rule of full correction, I have elsewhere written at length. They exist and must be recognized, but they do not detract from the great importance of the rule.

ASPERGILLAR KERATITIS.

BY E. C. ELLETT, M. D.,

MEMPHIS, TENN.

Among the rarer forms of corneal inflammation is that due to some variety of aspergillus. Only a few cases have been reported and of these all, according to Schanz, were due to Aspergillus Fumigatus. The subject has been recently discussed by Ball of St. Louis (*Am. Medicine,* July, 1901), who reported one case and added a complete bibliography. I desire to report one case, as follows:

J. T., colored, aged 22, was referred to me by Dr. J. L. Rosebrough of Senatobia, Miss., for an affection of the right eye of one year's duration. Beyond this fact he could give very little account of his trouble. On inspection of the eye there were the usual signs of an inflammation of the anterior segment, the lesion being in the cornea in the shape of an infiltrated area shaped like a comet with a curved tail. The head of the comet was a little down and out from the corneal center, and the tail passed from this point curving downward and outward to the sclera-corneal junction. In the center of the head was a small dark spot, evidently a foreign body. The tail of the comet was slightly vascular, the vessels running toward the head. The dark spot was picked out of the cornea, after anesthetizing it with holocain, and with the spot some of the surrounding softened cornea was removed. An antiseptic wash was given and the patient returned home the same day. Later reports stated that he had no further trouble and the eye was free from pain and redness in a few days. It is likely that a corneal opacity remained, as the cornea was deeply invaded. Microscopic examination of the mass removed from the cornea showed it to be Aspergillus Niger.

Ocular Muscle Errors.—The effects of muscle insufficiency are noticed by Parker, Detroit (*Physician and Surgeon*, June), who remarks that they have no one pathognomonic symptom. The headaches may be somewhat characteristic, extending to the top of the head and finally settling in the back of the neck, whereas refractive errors usually cause only frontal headache. For small degrees of deviation either upward or outward the use of correcting prisms may suffice. Slight deviations outward and upward more often give symptoms than a small deviation inward, but are more amenable to treatment. He does not claim that all headaches are ocular, but shows that in muscular imbalance, as in astigmatism, there may be a considerable chain of unfavorable symptoms.—*Jour. A. M. A.*

Case of Naphthalin Cataract in Man.—A. Levenius of St. Petersburg reports the first case of an actual cataract produced in man by ingestion of naphthalin, confirming the results obtained on animals. In the experiments in this line 1 gm. of naphthalin per kilogram of body weight of the animals induced a cataract formation. In the case described the patient was a pharmacist 36 years old, robust and eyesight normal. A physician prescribed for him, in 1900, naphthalin in the dose of 5 gm. to 200 gm. castor oil as he exhibited symptoms of an inflammation of the bowels. He took the whole amount in thirteen hours at one-hour intervals. He awoke next morning with pain in the bladder and found that he could scarcely see. The perinuclear cloudiness of both lenses had increased by the ninth hour until he could only count fingers at 4 feet. Reading and writing were impossible. The cloudiness has persisted unchanged, the first phase of zonular cataract. It had not been operated on at the time the article appeared in the *Klin. Monatsblatt f. Augenhk.*

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REVIEWS.

Acuteness of Vision and Astigmatism.—Dr. Adolf Steiger, Zurich. (*Archiv. f. Augenheilkunde,* Vol. xliv., 1901.)

In Germany the importance of astigmatism, and especially of its low grades, is of late years, as in this country, being recognized as a cause of asthenopia. But Steiger holds that there is much difference of opinion as to the amount of astigmatism that may exist without much diminution of vision below the fixed standards, say 1, and also as to the necessity of correcting astigmatism when vision is normal. Accordingly he made experiments in a well lighted place to determine the following:

Acuteness of vision in relation to the different degrees of corneal astigmatism with and without correction by means of cylinders (440 boys).

On analyzing the table embodying the experiments it is seen that in all cases of astigmatism against the rule (perverse) there was subjective astigmatism, vision without cylinder being 0.81, and with cyl. 1.19, and improvement of 0.38, or 47 per cent.

This is in strong contrast to the cases with the rule, for in the cases of the latter from 0.25 D to 2.00 D in which there was no subjective astigmatism (manifest) the vision was from 1.29 (1 to 2.00 D) to 1.34 (0.5 D). From 2 to 3 D and over subjective astigmatism was always present, and the percentage of improvement from correction from 69 to 83 per cent. The average acuteness of vision in eyes with corneal astigmatism 0 to 1.75 was about 1 1/3.

The condition among 500 girls of the same school grades was quite similar.

The author draws some interesting and instructive conclusions:

1. Perverse astigmatism, even when of low degree, reduces vision greatly and correction causes marked improvement.

2. The lower and middle degrees of corneal astigmatism up to 1.75 D permit in the young good vision, which usually can be improved by correction, but correction is less often required on account of diminution of vision than on account of asthenopia.

3. The higher degrees, 2 D or more, cause usually a diminution of vision to 1/3 or 1/2, and frequently with the best correction vision is not improved beyond the moderate average 1.

The author further remarks that no one will assert that a person with vision 1 cannot perform or is not fitted for most occupations, although frequently better vision would be desirable. The difficulty lies often not in the diminution of vision, for there may be momentary good vision without the power to maintain it. When vision by a trivial error is reduced from 1.4 to 0.9 the faulty course of the rays is evidently not the only, although the primary cause.

He then goes on to make a statement which singularly corroborates the views maintained by those who believe in the socalled astigmatic contractions of the ciliary muscle.

Practical experience, he says, forces us more and more to the belief that in the interior of the eye, whether in the posterior surface of the cornea, or in the form of the lens, or in their functional adaptation, or from other causes, an astigmatism according to the rule is more readily compensated for than a perverse astigmatism, and that in perverse astigmatism the subjective amount is greater than the objective, the author's investigations also showing that corrected vision in cases of perverse astigmatism frequently is not so good as in cases of astigmatism according to the rule under 1.75 D.

F. B. Eaton.

The Extirpation of the Ciliary Ganglion.—M. Rohmer (*Annales D'Oculistique,* July, 1902):

Before entering upon his subject proper he says: "One is able to affirm today that the treatment of choice for simple glaucoma is the extirpation of the superior cervical ganglion of the sympathetic." He credits this ganglion with controlling the intra-ocular tension by acting upon the vascularization of the posterior segment of the globe. He claims that the vascularization of the anterior segment is controlled by the ciliary ganglion. He has given the location of the ciliary ganglion close study by investigations upon the cadaver He locates it as follows: "The distance of the ganglion from the posterior pole of the globe on one hand and that of the ganglion from the optic foramen on the other hand show that the ciliary ganglion is in the posterior part of the orbit at about one and a half cm. behind the posterior pole of the ocular globe. The anterior extremity of the ganglion corresponds to the union of one-third posterior with two-thirds anterior of the external side of the optic nerve. This ganglion is always separated from the optic nerve by a small quantity of adipose tissue and by the long post-ciliary artery. It is situated upon a plane inferior to the optic nerve." He has only performed the operation of the removal of this ganglion upon such glaucomatous eyes as are sightless and painful and intensely injected, and indicated nothing else than enucleation. He claims that in the six cases upon whom he performed this operation the results were excellent, since the diseased eyes, although having lost all vision, were preserved with good cosmetic results, and great satisfaction to the patients. A brief description of his operation is as follows: He proceeds with the operation by resecting the external ocular wall after the method of Krönlein. After the external orbital wall is cut through and bent backward for about 1 cm. thus making a hole through which the external rectus is exposed, the muscle is then caught up with a strabismus hook and secured by a suture, then sectioned at a short distance from its scleral attachment. The muscle is then drawn out and turned backward while the globe is rotated inward. He now introduces into the orbit to the supposed site of the ganglion a pair of specially modified forceps, and grasps within this field until the ganglion is secured, in part or in whole, and removed. He has found that it is necessary to introduce the forceps in the manner described from five to seven times. The orbital fat that protrudes is replaced, and the ends of the cut rectus muscle are sutured together. The orbital wall is now replaced, and before suturing the skin a drainage tube is placed to the bottom of the orbit and protrudes from the angle of the wound. The eye is closed with a compress bandage. The eye is dressed at the end of 48 hours and the tube removed, and the eye redressed with compress bandage. There is a tendency to exophthalmus which requires the compress for several days. The wound is healed in eight days. He reports six cases operated upon, in all of which the pain, that had been so conspicuous, was relieved in whole or in part in 48 hours. Some of his cases had recurrence of pain after a time, but it was easily controlled by eserine. In none of his cases was the tension reduced to normal. The motility of the eyes was interfered with, probably, as he thinks, by a kind of ankylosis induced by the post-orbital hemorrhage.

Cure of Retinal Detachment by Subconjunctival and Intracapsular Injections of Salt.—In the August number of the same journal L. de Wecker has an article under the above title. He favors the intracapsular injections, notwithstanding that solutions so injected are not confined to the intracapsular space, but find their way back under the conjunctiva. He does not feel satisfied with an injection unless there is a swelling raised at the site of the injection. He has used as high as 30 per cent solutions of salt, but finds strong solutions very painful. He finds solutions of sodium sulphate less painful, also vitrophied solutions charged with salt. The vitreous solutions are made by taking the vitreous from cows' eyes, placing it in vials and adding concentrated solutions of salt. He is not satisfied with the explanations given of the therapeutic action of these injections, but is satisfied with the clinical results, and that the method stands today the best at our command for the treatment and cure of detachment of the retina.

Galezowski (*Recueil D'Ophtalmologie,* Paris, August, 1902) takes a very strong stand **against the preservation of ocular stumps that are liable to cause sympathetic ophthalmia.** He even condemns tattooing, and is strongly opposed to the many substitutes for enucleation that are now so popular. He believes in taking no chances, and that in enucleation we have the only safe procedure. He evidently does not agree with the favorable findings of the "International Committee," who went so thoroughly into the subject of substitutes for enucleation.

Dr. Gelpke, of Karlsruhe, **On the Diagnostic Value of the Large Electro-Magnet,** *Klinische Monatsblatter,* July, 1902. He feels that the armamentarium of the oculist is no longer complete without the large magnet. That at one time the cost was largely prohibitive, but that this no longer obtains. He favors Volkman's large electro-magnet because of its minimum cost, its portability and convenience, and withal its great magnetic power. He thinks the large magnet is superior to the sideroscope for diagnostic purposes because the latter is such a sensitive instrument that it is difficult to operate it successfully in the average office. He cites a case in which a foreign body in the vitreous that had been there for some years, and could be seen with the ophthalmoscope, was seen to change its position when the magnet was brought within 5 cm. of the eye.

Alfred Roscher, in the same journal, treats on the **Bacteriology of Conjunctivitis Crouposa.** He reports five cases in all, of which careful bacteriological examinations of the ocular secretions were made. In his first case a diplococcus was found that resembled the diplococcus of gonorrhoea. In his second case the pneumococcus was found alone, no other bacteria. In his last three cases the xerosis bacilli were found. He thinks the xerosis bacilli might be purely accidental, and of no pathogenic importance. On the other hand he says it is an open bacteriological question as to the coidentity of the xerosis and diphtheria bacilli. He does not think the serum treatment justified. His cases all made a rapid recovery without it, and he is inclined to think that, had it been used, undue credit would have been given it. MELVILLE BLACK.

Voluntary Nystagmus.—Smith *(Illinois Medical Journal)* reports a case and discusses the condition, reporting also experimental researches of his own on the subject. He remarks that movements of the eye may be produced by electric excitation of the motor area of the frontal lobe and the occipital cortex of the visual center region. In the former case the impulse or sensation must travel from the kinesthetic centers of the frontal cortex to the lower centers along contiguous medullary fibers which he describes as the "Z tract" or "ocular radiation" and notes the following in support of this: 1. In the projection system the anatomy seems to show the connection between the cortical centers of the frontal lobe with the ganglionic centers of the thalamus, and of these with the nuclei of the nerves of the ocular muscles, and also with the co-ordinating centers. 2. That the thalamus is an important basal ganglion not only originating fibers, but also a kind of way-station or internode through which fibers pass to and from the cortex. 3. In the "Z tract" or "ocular radiation" fibers stream outward from the side of the thalamus. Their course through the thalamus is shown by the transverse markings of the medullary fibers in the anterior, external and posterior nuclei. 4. The response in activity of the ocular muscles under the influence of electric stimulation in the region of the precentral sulcus. 5. Nystagmatic movements have been produced by passing a probe into the region of the corpora striata and optic thalami. 6. Inco-ordinated movements of the eyes are never intimately connected with lesions of the upper and more peripheral parts of the brain. 7. Cerebral hemorrhages involving the basal ganglia often produce conjugate deviation of the head and eyes toward the unparalyzed side. 8. Conjugate deviation of the eyes occurring as a symptom of cerebral lesion in the region of the basal ganglia is usually indirect and transitory, showing a temporary disturbance only in the tract of fibers connecting the cortex with the center of the brain.—*Abstr. Jour. A. M. A.*

REPORTS OF SOCIETIES.

CHICAGO OPHTHALMOLOGICAL AND OTOLOGICAL SOCIETY.

REPORT OF THE MEETING OF MAY 13, 1902.

BY BROWN PUSEY, SECRETARY.

Dr. Wm. H. Wilder, president, presided.

Dr. Nelson Miles Black, of Milwaukee, Wis., read a paper on *A Simple and Effective Method of Determining the Degree of Deviation in Squint.* (See page 571) Dr. Black exhibited the apparatus which he uses.

Dr. Wm. E. Gamble reported a case of *Right Homonymous Hemianopsia, Right Hemianesthesia and Right Hemiparesis, Principally Involving the Leg, Accompanied by Visual Aphasia and Agraphia, Resulting from a Gunshot Wound.*

The bullet entered the left temporal bone 1½ inches back of the external canthus of the left eye and ½ inch above the zygoma, the gun being held within a few feet of the head.

Radiographs made three years after the injury show the bullet to be in the occipital region, about ½ inch to the left side of the median line and resting on or near the tentorium, probably ⅛ inch anterior to the skull in this region.

Dr. Gamble demonstrated upon the skull, with the aid of the radiographs, that the lesion must be, throughout its whole extent, posterior to the central ganglia.

Right hemianesthesia, right hemiplegia and right homonymous hemianopsia would be explained by hemorrhage involving the lower part of the posterior limb of the internal capsule. This view was taken for the reason that the patient has recovered from the hemianesthesia, excepting a little numbness in the second and third toes of the right foot, and has entirely recovered from the hemiparesis.

The track of the bullet from its entrance to its present position would have cut off or injured fibers running forward from the cuneus and angular gyrus as well as producing injury of these regions.

These lesions will account for the "visual aphasia" as described by Freund. And will account for the hemianopsia as well as the injury to the internal capsule would account for it. He pointed out that in this case there was primary atrophy of both discs, but not a typical primary atrophy.

The left halves of fields for *form* were concentrically contracted, to the temporal side extending to 55 degrees, above and blow to 50 degrees in each half field: for each *red*, to the temporal side to 25 degrees, above to 22 degrees, below to 25 degrees in each eye; for *green*, to the temporal side, above and below to 20 degrees.

Central vision in each eye equals 20/20 plus.

Dr. Gamble believes that this case conclusively shows that lesions posterior to the central ganglia may produce changes in the optic discs.

Dr. H. W. Woodruff, of Joliet, Ill., exhibited two cases.

1. *A Case of Operation for Cicatricial Ectropion of the Upper Lid.*

2. *A Case of Operation for Forming a Cul de Sac for the Retention of an Artificial Eye.*

Dr. William H. Wilder presented a boy with *Exophthalmos from Orbital Cellulitis,* who was shown at the April meeting of the Society, at which time he had marked exophthalmos, probably from orbital cellulitis. The case recovered without operation.

Dr. Oscar Dodd showed a boy, 5 years of age, with *Hyaline Degeneration of the Cornea (?).*

Dr. W. F. Coleman reported two cases of *Implantation of Fluid Vaseline in the Sclera.* The eye was eviscerated in the usual way and freely irrigated with hot water, containing 1-5000 of formalin. The interior of the sclera was swabbed with 95 per cent carbolic acid, and the scleral wound closed with interrupted catgut 00 sutures, leaving a central opening for the introduction of the nozzle of an ounce glass syringe. This was filled from a tube of sterilized fluid vaseline, which was injected, and the sclera closed tightly and covered with silk sutured conjunctiva. There was not sufficient reaction to cause swelling of the lids. A month later the orbit presented an unusually large, movable stump, but the patient has not since answered Dr. Coleman's appeals to call to see him.

Case 2.—The right eye had been lost for years, from an injury, and presented a chronic cyclitis. Evisceration and implantation of vaseline, as in previous case, except a *purse-string* suture was used and pulled tightly around the nozzle of the syringe during the injection, and tied during withdrawal of the syringe. The scleral wound was re-enforced by an extra continuous suture.

The reaction was so severe for four or five days that Dr. Coleman thought of opening the sclera, but then the necessity rapidly disappeared, and on April 3rd a small glass eye was inserted, the motion of which was, in 30°; out, up and down 5°. The usual sulcus in the upper lid was completely absent.

Whether the movements of an artificial eye after implantation are much better than after simple enucleation of evisceration, Dr. Coleman thinks is a question yet to be decided. He thinks that the implantation of a soft, yielding mass, like vaseline, would be much less likely to cause sympathetic trouble than the implantation of a hard mass like glass. Glass-ball implantation (Mules operation) has been followed by several cases of sympathetic ophthalmia, and Dr. Coleman said that such a case, which occurred in his own practice, urges him not to repeat such a risk.

Discussion.—Dr. Colburn said that about four months ago he injected a mixture of paraffin and vaseline into a very deeply sunken orbit, in which the artificial eye was badly held. The paraffin filled the cavity very well. He had not seen the patient for a month, but when he last saw the patient there was hardly any shrinking. He used about equal parts of fluid vaseline, and a wax, which melted at a very low temperature.

COLORADO OPHTHALMOLOGICAL SOCIETY.

Meeting held at Colorado Springs, April 19th, 1902. Dr. J. A. Patterson of Colorado Springs in the chair.

Dr. George F. Libby of Colorado Springs brought before the Society Mrs. J. M., aged 60, who had suffered from *dacryocystitis* for one year. History of phlegmon, with spontaneous rupture and fistula. He slit up the lower caniliculus and passed Theobold probes Nos. 7, 8 and 9, inserted lead style 2.25 mm. diameter. Cleansed daily for three months. Then secondary abscess of sac occurred. He removed style and cleansed daily, fluid easily passed into nose. Fluid used was a 1/4 per cent sol. sulph. zinc. This has been used daily, or every other day. She has been under his care for four months. She is almost well but not entirely. The feature of interest in the case is that pressure over the sac causes regurgitation of fluid out of upper caniliculus rather than through the slit caniliculus.

Dr. Libby brought before the Society a little girl nine years of age that he presented before at a former meeting, who has *alternating C.C. Squint* with corneal leucomata. The strabismus is yielding under full correction of her hypermetropic refractive error.

Dr. Libby also reported the case of a child aged five years who had *acute dacryo-cysto-blennorrhoea and lachrymal fistula.* It discharged itself into the nose and was cured without treatment save outside cleansing. Ulcerative keratitis developed but healed as the lachrymal condition improved.

Dr. Libby also reported the case of another child aged five years who had *acute dacryo-cysto-blennorrhoea* that was cured in three days by the use of hot applications and painting the part in the interem with glycerole of tannin.

Discussion.—Dr. Melville Black of Denver said in the case of the woman who had regurgitation through the upper caniliculus rather than through the lower slit caniliculus that it was no doubt due to a band of tissue stretched across the upper outer margin of lachrymal sac at the opening of the lower caniliculus, and that pressure upon the sac caused this band of tissue to move upward thereby closing the opening of the slit caniliculus into the sac, and causing the passage of fluid out through the upper caniliculus.

Dr. E. R. Neeper of Colorado Springs related his experience with a full blooded colt that had lachrymal obstruction. He passed a wire about 18″ long down through the lachrymal passage. Then withdrew it and tied some silk thread on to the end of wire and again passed it. The wire came out very close to the meatus of the horse's nose. The silk threads were pulled on through and disengaged from the end of wire and the latter withdrawn. A knot was then made at about center of thread and this knot was drawn up and down the lachrymal passage once daily. The colt made a very nice recovery.

Dr. Libby said that he had read in a Maine medical journal of some man who was using a similar procedure on human beings. That after passing the silk and making a knot the ends of the thread were tied and the knot drawn through the lachrymal passage once daily. The process was especially advised in children.

Dr. A. C. Friedmann of Colorado Springs brought before the Society a woman aged 55 who had a *coloboma of optic nerve.* The coloboma was -6.00 at bottom, its margins being emetropic, V = 5/4.

Dr. Friedmann brought before the Society a young man aged 20 with *retinal detachment with extensive vitreous changes.* The man came to him about a month ago. Dr. Libby had previously treated him before detachment occurred and would give his experience with the case later.

Dr. Friedmann also brought before the Society a woman who had been a long sufferer from trachoma. She now has a conical cornea that at some time recently had ulcerated at apex and perforated.

She now presents a healed apex with ant. synechia, but with no reduction apparently of the conicity.

Dr. Friedmann again brought before the Society a man whom he had presented three months before. The man had *tabes with atrophy of the optic nerve.* No change is manifest in his condition.

Dr. Friedmann also brought before the society a man with *anasicoria.* Left pupil rigid. He has used pilocarpine which caused contraction of pupil lasting three hours. He has been under anti-syphilitic treatment, and has improved very slightly. There is no accommodative trouble.

Discussion.—Dr. Edward Jackson of Denver thought the case of coloboma a very rare and interesting one and hoped that a drawing might be made of it. He thought it a coloboma of the nerve sheath extending below into the choroid. He has never seen a coloboma of the sheath before that extended so much into the choroid.

Dr. Libby said he saw the case of retinal detachment about a year ago while the young man was attending college. He had been using his eyes excessively for near work and had asthenopia with poor vision. The latter being 4/10 and 2/10. He had vitreous opacities in his worse eye, but no detachment. He was fitted with +2.00 lenses, and given iodide of sodium and strychnine and near work stopped. He improved very rapidly and was discharged last summer with normal vision.

Dr. Patterson remarked that he was reminded of a case of coloboma of the lens that he once saw in which there was no coloboma of the iris.

Dr. J. A. Patterson of Colorado Springs brought before the society a man aged 64 who had *floating particles of collesterine in his vitreous with no collesterine deposits visible in his retina.* His vision was not especially impaired.

Dr. Patterson brought before the society a man of about 30 years of age who had a very marked *herpes of forhead and inner side of nose, with a few spots on upper eyelid.* He gave a history of injury of the eyelid from flying particles of rock which was followed by pain and then the eruption. There was no corneal involvement when he first saw him but there was iritis. The pupil would not dilate with 1 per cent sol. atropine so he used a particle of solid atropine in the lower cul-de-sac. The next day the cornea became involved and is now extensively so. He does not know if the atropine caused the corneal trouble or not. The solid atropine did not dilate the pupil.

Discussion.—Dr. Black demonstrated upon this case the staining value of 2 per cent sol. methylene blue in mapping out the extent of corneal ulceration. Wherever there was abrasion a deep blue stain occurred.

Dr. H. T. Pershing, a neurologist of Denver, who was a guest of the society, said Dr. Friedmann's case of tabes had no Romberg symptoms, he being able to stand well on either foot with eyes closed. He remarked that if optic atrophy developed early the spinal symptoms were liable to be arrested. The disease seemed to expend itself upon the optic nerve. He felt that when optic atrophy appeared alone without other symptoms that it was more likely due to tabes than anything else.

Dr. Friedmann asked Dr. Pershing if he approved of antisyphilitic treatment in tabes.

Dr. Pershing replied that neurologists believed that such treatment contraindicated unless active symptoms of syphilis were manifest.

The subject for the evening was *Myopia.*

Dr. Edward Jackson read a paper on *The Full Correction of Myopia* which is published in full on page 576.

Dr. A. C. Friedmann read a paper on *The Correction of Myopia.* See page 573.

Discussion.—Dr. E. M. Marbourg of Pueblo, thought Knapp's position right. He found that full correction would not always be tolerated. The patients would not wear the glasses given. A compromise was necessary before they would wear them. He thought toric lenses should be prescribed for full correction.

Dr. Libby was in favor of giving full correction before puberty. After patients were 18 or 20 years of age and had never worn glasses, he found full correction gave so much discomfort that it was hard to get the patient to wear them.

Dr. Neeper was in accord with Dr. Libby. He thought the free use of atropine advisable before the full correction of myopia.

Dr. Pershing had found his own eyes very interesting. His father had about 15.D. of myopia. It had apparently developed from excessive reading before a pine-knot fire when young. One eye was amblyopic. He had two brothers and two sisters. One brother and one sister were highly myopic. He said his own myopia developed during school life. He recognized, before consulting an oculist, that his myopia was progressing. He was having great asthenopia, and it became so unbearable that at 17 he consulted Dr. Wm. F. Norris of Philadelphia. Dr. Norris took him out of school for a year. He used atropine in his eyes for three months. He began wearing a partial correction for far and near, 5.D for distance and 3.D. for near. His asthenopia was relieved but his myopia progressed. When 24 years of age Dr. Norris found he had 10.D. of myopia and gave him full correction for distance, and — 7.D. for near. He wore these glasses until three years ago. The glasses for near work he only used when he expected to do continuous work with his eyes at near point. His near vision was good with his full correction — 10.00 D. until he began to be presbyopic, since then he has been wearing — 8.50 D. for far and near. He experiences the greatest satisfaction with full correction for distance and feels as though a plus glass were placed before his eyes when the strength of his lenses are reduced. When he first wore partial correction he looked obliquely through his lenses because he found he could see better.

Dr. Black said he was in favor of full correction. He had not found that in this western country progressive myopia was a very important part of our work. He considered serious progression of myopia here rare. He always insisted upon myopes returning every six months at least until he was satisfied that there was no progression. He was unable to recall a single case of myopia that had progressed to any extent during his residence of eleven years in Colorado. He thought certain nationalities, the Germans for instance, were predisposed to myopia because of the bony construction of their orbits and skulls. Heredity undoubtedly plays an important part, but might not this heredity be more along the lines just mentioned. He would recommend to Dr. Pershing full correction for distance with bifocal lenses, the lower segments being appropriate for his presbyopia.

Dr. Bane said he had found that when astigmatism was present with myopia it progressed when the myopia progressed. He believed in stopping all work and giving full correction, and urging that the glasses be worn. He thought that if Dr. Black would go through his records carefully he would find more cases that had progressed than he could now remember.

Dr. Jackson said that in the discussion upon this subject before the American Ophthalmological Society there was, much to the surprise of all, great unanimity of opinion as to the value of full correction. At the Heidelberg Congress no one would attempt to defend partial correction. He thought the annoyance of full myopic correction not more annoying than strong lenses worn for the correction of other errors.

Dr. Friedmann thought it wisest to judge of individual cases and not to be governed by any rule. He had not found myopia an important factor in this western country. Since leaving Germany he had forgotten many of the fine details he used to know about myopia. He was not aware that the German skulls were peculiar. He thought the hereditary influences in Germany were the important influences. It is said that full correction in children has produced glaucoma. Each case should be considered as to fundus changes and the amount of myopia as well as the comfort of the patient.

MELVILLE BLACK, Secretary.

GERMAN OPHTHALMOLOGICAL SOCIETY.

Heidelberg, August 3-6, 1902. (*Klinische Monatsbl. f. Augenheilk.*, Aug.-Sept., 1902). Translated by E. A. Shumway, M. D.

Further Investigations on the Serum-Therapy of Ulcus Corneae.—Römer (Würzburg) reported a series of 80 cases of *ulcus serpens*, in 95 per cent of which the Fränkel-Weichselbaum diplococcus was found, corroborating Uhthoff and Axenfeld's statistics. In eight beginning cases he was able to check the process and cure the ulcer, by the use of pneumococcus serum. He believes that there is a possibility of preventing the formation of an ulcer by early immunization of the patient by means of the serum. Axenfeld urged the more frequent extirpation of the lachrymal sac, in these cases, in order to remove the source of infection.

Concerning the Pupillary Centers.—Bach and Hans Mayer gave the results of a series of experiments on the effect of sections of the cervical cord and medulla oblongata in cats, upon the light reactions of the pupil. They are as follows: Sections of the cervical cord have no influence. Sections at a point near the spinal end of the aqueduct of Sylvius abolish the light reflex immediately. Unilateral section in this position causes loss of the light reflex on the opposite side. Slight irritation, either mechanical or otherwise, of the aqueduct of Sylvius causes miosis and pupillary spasm, which can be at once removed by section above the spinal end of the aqueduct, when the reaction becomes very prompt. The results of the experiment can be best explained by the assumption of a *reflex inhibitory center* for the pupillary reflex, situated in the spinal end of the aqueduct. Injection of nicotin into the orbit in cats, paralyzes the sphincter pupillae in a few seconds, and very shortly afterward the same muscle of the other side. This speaks for the presence of sympathetic nerve cells in the orbit.

Changes in the Epithelium of the Ciliary Bodies in Naphthalin and Ergotin Poisoning.—Peters (Rostock) reported further studies of the changes in these cells in various forms of artificial cataract formation. After a single administration of naphthalin, vacuole formation could be demonstrated in the cells of the ciliary processes and of the retina, just as after puncture of the anterior chamber. The pigment epithelium was partly destroyed and there was an albuminous secretion on the surface of the processes, the cataractous changes at this early stage consisting of slight folding of the capsule in the equatorial region. After ligation of the venæ vorticosæ the chief alteration was the profuse hemorrhage, but here also similar changes in the pigment epithelium could be shown, while the chief cause of the fibrinous deposit was undoubtedly the direct mechanical irritation of the tissue by the hemorrhage. After subcutaneous injection of ergotin similar characteristic changes were found, chiefly in the pigment epithelium, and he considered that this poison also has a specific action upon the ciliary epithelial cells, which causes them to secrete a qualitatively altered aqueous humor, which acts upon the lens, as he has previously described.

Vossius (Giessen) reported 14 cases of *goitre, associated with cataract.* The cataracts were usually nuclear in type with more or less clear cortex, and were readily removed without iridectomy, because of their firm consistency. Also in elderly patients with goitre the cataracts were usually harder than the ordinary senile form. They developed slowly in contrast to the diabetic cataracts of the young: in the aged the first change was a posterior polar opacity, either alone or associated with an anterior polar cataract. In their production he assumed an auto-intoxication as a result of the cessation or alteration of the thyroid function, and recalled the observations of Peters and other authors on the connection between tetany and cataract, and the production of tetany after thyroidectomy; he mentioned further the occurrence of cataract in Morbus Basedowii, and in myxœdema. Peters believes that the cataract in tetany is due to changes in the ciliary pigment cells, as observed in diabetes, and Vossius thought that similar degenerative changes of these cells might develop also in goitre, and either like the cataract, be the result of the auto-intoxication, or cause it by altering the constitution of the aqueous. In the discussion Uhthoff, Pflüger, and Sattler doubted the etiological relation of goitre and cataract.

Wagenmann (Jena) has used *ethyl chloride anaesthesia* successfully in minor operations on the eyelids and eyebrow, and in extirpation of the lachrymal sac. The freezing causes some burning of the skin, but the healing of the wound is not delayed. If the anaesthesia does not extend deep enough, cocaine may be applied to the wound. He has used it in extirpation of the lachrymal sac, entropion and trichiasis operations, and has found it of especial value in opening furuncles, abscesses, hordeola, and phlegmonous inflammations of the lachrymal sac.

Fuchs (Vienna) reported a case of *Scleritis posterior.* A 16-year old boy complained of pain first in the right eye, then, two months later, in the left eye, and immediately noticed a disturbance of vision. In the fundus in addition to hyperæmia of the papilla, there was a slate-colored opacity of the retina, in the macular region, with elevation of the retina, which produced an ophthalmoscopically and functionally demonstrable hypermetropia. Redness and swelling of the conjunctiva and of the episcleral tissue at the outer canthus were also present. The retinal opacity, and the disturbance of vision disappeared within several weeks, without leaving a trace. Fuchs believes that the condition can not be due to an inflammation of the retina or choroid, because of the comparatively slight disturbance of vision, and the rapid return to normal. The pain points to inflammation of the sclera, which he locates in the posterior part of the eye; this would produce opacity of the retina, and an elevation of its surface.

Axenfeld (Freiburg) gave the post-mortem findings in a man 60 years old, who had had fracture of the skull, many years before. There was a mass about the size of a mark-piece projecting into the brain from the orbit, which proved to be a hernia orbito cerebralis after fracture of the roof of the orbit and perforation of the dura. It was covered by an organized haematoma of the dura. The intraorbital pressure had probably been greater than the intracerebral, and later the organization of the dural haematoma had prevented the cerebral substance from escaping through the opening.

Wagenmann (Jena) reported the *pathological appearance in a case of rupture of the choroid and iridodialysis.* Only the inner layers of the choroid were torn; the tear began at the point of entrance of a ciliary artery, and involved the retina in the entire extent of the tear, the defect being filled in with a delicate scar tissue. The iridodialysis was associated with a rupture of the zonula, and the corresponding part of the lens was more convex. From the scar in the iris a layer of endothelium extended to the lens, along the vitreous, which had been forced into the tear in the zonula. Laterally from the iridodialysis the angle of the anterior chamber was, in its entire circumference torn inward to the ciliary body; the ligamentum pectinatum being also ruptured.

Herzog (Berlin). *The Development of the Internal Eye Muscles.* Herzog argued that the sphincter and dilator muscles of the iris were epithelial in origin, whereas the ciliary muscle was derived from the mesoderm, and demonstrated numerous preparations.

O. Schirmer. *The Secretion and Drainage of the Tears after extirpation of the lachrymal sacs.* Schirmer has determined, by questioning fifty patients, in whom the lachrymal sac had been removed from three to eight and a half years previously, that in the great majority of cases there was epiphora while the patient was in the wind, but not when in the house; only about one-half admitted that lachrymation had been lessened by the operation. The improvement does not depend, as Tscherno-Schwartz asserted, after experiments on rabbits, upon an atrophy of the gland, as such is not clinically demonstrable in man, even after many years; but rather upon the fact that in the house tears are produced in such small quantity in the normal eye (¼ to ½ g. per day), that a drop runs over only once in one to two hours, and the patient does not consider this epiphora. This is not of great importance in moistening the conjunctiva; the mucous membrane keeps itself moist by its own secretion. If epiphora continues after the extirpation, either conjunctivitis or ectropion will result. If treatment does not succeed, the palpebral gland should be excised, an operation which deserves more extended trial.

Axenfeld and Naito. *Interscleral Nerve Bundles.* Axenfeld showed in his investigations of the anterior ciliary nerves (Heidelberg, 1893) that in many normal eyes a nerve penetrated the sclera, just posterior to the ciliary body, which was double the thickness of an ordinary ciliary nerve, and divided into two parts in the supra choroidal space, one branch running forward and the other, somewhat narrower, running backward, so that a picture resembling the papilla nervi optici resulted. Curiously enough this comparatively large nerve could not be traced beyond the surface of the sclera. The question arose whether it resulted from the union of several smaller nerves in the sclera, or whether it was an interscleral loop of a ciliary nerve coming from behind forward. By further investigations the authors have now proven that the nerves are really interscleral bundles. The ciliary nerve enters the sclera perpendicularly, and having reached the surface, bends backward at right angles and then runs forward, dividing here in part circularly in the corpus ciliare. The condition is frequent but not constant, and usually only one such nerve exists in an eye. Concerning the origin and physiological meaning of the discovery, nothing definite can be said; it would seem as though the nerve were too long for the eye, and as if the loop were a fixation point, which made possible a lateral subdivision further forward.

Heine (Breslau). *Lacerations of the lamina elastica in the myopic eye.* Following Salzmann's communication of the year previous, Heine showed preparations proving that the lesions in myopic eyes are not due to an inflammatory process, but to injuries of the choroid and retina produced by mechanical stretching of these coats. The lamina elastica shows tears of various size, of which the smallest are the most interesting because they show no further complications than disturbances of the pigment epithelium. This is probably the primary change. Secondarily regenerative or even reactive proliferative changes appear in the pigment epithelium, and also in the choroid, which may lead to hypertrophic scars.

Leber (Heidelberg) showed an *illuminating apparatus for the sclera*, which consists of a short glass rod placed in front of an electric light, which transmits the light to the eye, and can be left in contact with it without becoming hot. The instrument is useful in diagnosing intraocular tumors.

Best (Giessen). *Congenital chorioretinitis.* In this form of congenital chorioretinitis, distinguished by the occurrence of a fine, light stippling associated with very fine, round pigment dots, Best believes that the condition stands in much closer relation to typical retinitis pigmentosa than to congenital lues. In nine cases in the clinic at Gressin congenital lues was not present. Best has seen transition forms between the typical congenital chorioretinitis and the frequently observed partly physiological, granular condition of the pigment epithelium. In the latter a large black pigment spot may be often seen, somewhere in the fundus. The finely granular pigmentation is found often in children with inherited defects in the eye, such as strabismus, nystagmus, high hyperopia, astigmatism, etc., and is probably a sign of inherited inferiority of the eye, and in his own cases, not due to congenital lues.

Uhthoff (Breslau). *Contribution to the visual disturbances in brain injuries, with remarks on the functional disturbances in cere-*

bral diseases. Uhthoff reported a remarkable case of right-sided hemianopsia, caused by injury of the visual center in the left occipital lobe. The injury was produced by a falling wall stone, which caused a depressed fracture of the skull, to the left of the median line, posteriorly. The patient was operated upon three times for cerebral abscess, each time with temporary relief and finally died, 18 months after the accident. The autopsy showed a large abscess in the left occipital lobe. The following points were noted as especially remarkable:

1. Hemianopsia was produced directly by the injury to the visual center and optic radiation, as other focal symptoms were absent at first.

2. The disturbance of orientation, which was only temporary, and which occurred in a unilateral lesion of the left occipital lobe.

3. The combination of right-sided hemianaesthesia, with involvement of all the sense organs on this side, and right-sided hemianopsia. Uhthoff believed the first to be purely functional, according to our present knowledge of the representation of the nerve fibers from the various sense organs in the internal capsule of the opposite side.

4. The possibility of producing this right-sided hemianaesthesia by moderate compression of the part of the skull originally injured, and likewise the disappearance of the symptoms after removal of the pressure.

5. The appearance and disappearance of the choked disc before and after the operative treatment of the brain abscess. This rapid variation, in connection with the anatomical finding, allow of an explanation neither from a widening of the nerve sheaths, nor on the basis of an inflammatory process; the mechanical relations resulting from the cerebral pressure must play an important role.

6. Temporary disturbance of voluntary, associated lateral movement toward the right, while on fixation of an object such a movement toward the right can be carried out.

Vossius (Giessor). *Two rare cases of orbital affection.* 1. Necrosis of the conjunctiva bulbi, following injury of the conjunctiva, with streptococcus infection, and later gangrene of the lid, necrosis of the sclera, cornea and eyeball (54-year-old man). In literature only one similar case by Scholtz.

2. Actinomycosis of the outer wall of the orbit and of the sinus cavernosus, in a man 28 years old; left-sided exophthalmus with keratitis neuroparalytica, double optic neuritis. Autopsy: The

tumor had broken through the left temporal bone into the skull cavity, at a point corresponding to the entrance of the trigeminus, of which only the anterior portion was preserved; oculomotor and abducens nerves relaxed, gray white, atrophic; trochlea not to be recognized. The actinomycosis had started from the mouth, in the left upper jaw, just back of the wisdom tooth. The patient had been treated for lockjaw and suppurating wounds of the orbit eight years before, and later for similar conditions in the temple and ear. Finally violent pain in the left ear; incision in the outer auditory canal. The exophthalmus had then appeared.

Th. Baenziger and W. Silberschmidt (Zurich) reported a case of panophthalmitis following a wound from a splinter of wood, in which a pure culture of a spore-forming organism of the hay bacillus class was obtained.

H. Wolff (Berlin) has been able to demonstrate with his electric ophthalmoscope a pathological, net-like light-reflex in the macula lutea in both eyes of a patient, and was able to diagnose the presence of a chronic nephritis, fully half a year before the appearance of any nephritic symptoms and an equal time before the appearance of "retinitis albuminurica." The normal reflex seen by the electric ophthalmoscope in the upright image in all eyes (except in high myopia) up to the 45th and often to the 50th year, is silky in appearance and is the expression of the regular light reflex on the retinal surface. It consequently undergoes a characteristic change by the slightest variations in level (swelling), the net-like form being due to the anatomical arrangement of Müller's fibers. This is due to an œdema, the disposition toward which lies in the hydremia, the exciting cause being the normal ocular tension, or also the light irritation, to which the center of the retina is exposed ("hydrops irritativus," Virchow). Wolff has made similar observations in diabetes, pregnancy, lues, and also in local eye diseases. He therefore hopes that in this pathological, macular reflex we have found not only a prognostic and diagnostic sign of many local eye affections, but also an early ocular sign of general diseases of the body which produce hydremia.

G. Guttmann (Berlin) has used with success Angelucci's modification of the operation of cataract extraction, which consists in grasping the tendon of the superior rectus with a broad fixation forceps through the conjunctiva, 4 or 5 mm. from the cornea, and thus holding the eyeball firmly. The upper lid is held back at the same time, and the speculum dispensed with. If the operator draws the conjunctiva and the eyeball forward the iris is less apt to fall in front of the knife. In blepharophimosis and in deeply set eyes, and also in deaf persons, the method has special advantages. Guttmann has used it for simple extraction, extraction with iridectomy, in glaucoma operations, in discission of the lens and of secondary cataract, in linear extraction after operations for myopia, etc., and has found it worthy of recommendation. In iridectomy the lids must be held apart by an assistant.

MEXICAN OPHTHALMOLOGIC SOCIETY.

TRANSLATED BY A. B. HALE, M. D.

Session of June 5, 1902. Dr. J. Ramos presiding.

Diagnostic difference between chronic simple glaucoma and essential atrophy of the optic nerve. Dr. M. Uribe Troncoso presented a female patient in whom the ophthalmoscopic signs and the visual field supported the diagnosis of glaucoma, and in whom the other eye had shown symptoms of the acute disease. The woman was 60 and a year ago had noticed cloudiness of vision in both eyes without pain or redness, but had consulted a doctor only two months ago. The eyeballs were then found to be without scleral injection. In the *right eye* the anterior chamber was somewhat shallow, the pupil normal and active, lens and vitreous transparent, but the disc white with deep excavation to nasal side. There was no peripapillar halo. Tension somewhat increased. The visual field was largely lost, with but a segment remaining on the lower nasal side. Color field noticeably contracted, V = ⅛. The *left eye* seemed externally the same as the right, but the anterior chamber was not so diminished. The pale papilla showed also an excavation on the nasal side. There was no halo, T. + ?. Visual field concentrically narrowed but more marked on the temporal side. Color field noticeably more contracted than for white. Vision was 1/3.

On May 9, there occurred an acute attack in the *left eye* with pain, edema of lids and T + 3. Iridectomy was performed the next day with subsidence of pain and some return of vision. In the *right eye* there was also some increase of symptoms and some congestion of scleral vessels. Two months later at the edge of the coloboma of the *left eye* a faint exudate was noticed and the lens began to grow cloudy in spite of the use of myotics.

Interest centers around the fact that at first the condition of the field and the ophthalmoscopic signs might have indicated essential atrophy of the nerve, with excavation. It has been maintained that in glaucoma the narrowing of the field is always more marked on the nasal side and that the color field narrows concentrically with the white, while in atrophy, narrowing is concentric and colors, especially green, narrow disproportionately; a diagnostic difference. This case shows that the condition cannot always be accepted.

Uribe Troncoso referred then to cases intermediate between chronic simple glaucoma and essential nerve atrophy; where there is no constant increase of tension the diagnosis is difficult. He spoke of a case of Dr. Velez where one eye was lost by optic atrophy complicated with glaucomatous attacks during which there was at times hypertension, while the other eye presented solely the signs of incipient atrophy without excavation and marked narrowing of the field especially for colors. It might be said of this eye that it was in the preglaucomatous stage and that the vascular disease had not yet produced any dialbuminosis.

A case of keratoconus with hypermetropia. Dr. M. Uribe Troncoso presented a boy of 14 with keratoconus of the right eye that had been treated eight or nine years ago by compression, with good results, as the vision had somewhat improved. The patient tired of the treatment after two years and vision then grew worse. At the last examination skiascopy showed that in the horizontal meridian there was hypermetropia of + 3.50 D while in the vertical meridian there was scissors movement. The author thought Hy not excluded, as the patient's vision improved by + 3.0 D C 180 although — 3.0 D C 90 seemed to "make things brighter." In the other eye + lenses made V = 1.

Dr. J. Ramos had seen a case where + 3.0 D c ax. 180 noticeably improved vision. This patient had been subsequently operated on by corneal cautery. Skiascopy is difficult in such cases as is refraction also.

Tarsal form of exuberant pericorneal conjunctivitis. Dr Emilio F. Montano presented a patient on whose left tarsal conjunctiva there were numerous granulations. There were no pericorneal manifestations and the retrotarsal folds were intact. He had used his own treatment with improvement, showing that the condition was not trachoma.

Dr. Uribe Troncoso showed that there was clearly visible that edge of extension from conjunctiva to cornea—limbitis as he called it—which is present always at the upper part of the cornea, sometimes below or around the cornea and which characterizes pericorneal conjunctivitis.

Pannus treated by Jequirity. Dr. A. Chacon presented a case under his observation since 1894, an adult male with pannus on both corneae extending on one eye up to the pupil. There was mild conjunctival injection. The usual treatment had been of no avail and peritomy was abandoned owing to pain. Jequirity was then tried (according to the Wecker method). The purulent conjunctivitis was produced, but with no lasting benefit. He added that Abrus precatorius was found in Mexico (State of Vera Cruz) and he thought the native plant had the same qualities as the imported and asked that it be tried.

Dr. Uribe Troncoso remembered to have seen in the Spanish hospital a patient with corneal pannus from trachoma without granulations on the superior lid, but a few on the lower lid; these ulcerations above the pannus but none in the fornix. He thought Dr. Chacon's case one of corneal trachoma, and the lack of granulations was due probably to the fact that treatment had been carried on for some time.

Dr. Chacon agreed that there was a corneal form of trachoma, but in his patient the disease dated from childhood and in the locality there was very little trachoma.

Dr. Velez usually performed a peritomy and suture of the conjunctiva with subconjunctival injection of 5 per cent cocain solution, which prevented pain and at the same time elevated the conjunctiva and made incision easy. He also employed as subconjunctival injection the following solution, which was painless.

Distilled water	10.00
Acoin	0.11
Cyonusel of Mercury	0.01

One to two cc at an injection.

Dr. Chouez recalled the fact that there are two kinds of pannus, scrofulous and trachomatous. He thought the present case was something else, but rather of herpetic origin, in which the focus of infection was some skin eruption.

Dr. Uribe Troncoso said that according to Dr. Chouez there was first leucoma with subsequent vascularization, while according to Dr. Chacon the affection commenced as simple pannus.

Dr. Chouez said that he had not thought the affection began as a leucoma but as a lachrymal conjunctivitis with false granulations that caused the corneal pannus.

Dr. Chacon agreed with Dr. Chouez and mentioned that pannus is a new growth on the cornea and not an infiltration and that vascularization belongs to that membrane.

Tarsal form of exuberant periconjunctivitis and limbitis. Dr. Uribe Troncoso said, as the discussion was about periconjunctivitis he would call attention to the frequency of granulations on the lids without exuberant vegetations of the conjunctiva, where the only lesion of the bulb was an inflammatory infiltration of the limbus, a limbitis. He showed a child of 12 years, who curiously enough had ptosis in both eyes, due probably to the weight of the numerous granulations that filled the tarsal conjunctiva. Here the limbitis occupied the upper portion of the cornea, but when the inflammation is intense the infiltration may extend all round the cornea. Although Fuchs describes in spring catarrh a ring of corneal infiltration separated from the limbus by a zone of clear cornea, the author had never met this condition in Mexico, but had seen only the extension from conjunctiva to cornea, in the shape of an opaque crescent, vascularized. There is besides this, a form exclusively bulbar in which the only corneal symptom was this limbitis, usually located at the upper part of the cornea but without conjunctival vegetations or tarsal granulations. This form may be overlooked or confounded with simple catarrhal conjunctivitis. These granulations are easily distinguished from those of trachoma, since the latter are seen as grayish, translucent elevations extending into the fornix and even on to the inferior lid; those of periconjunctivitis are hard, cartilaginous, rough, pavement-like, never seen in the fornix, remain limited to the tarsus and are at times covered by a certain milky secretion.

Foreign body tolerated two months within the orbit. Dr. Vélez presented a boy of 12 who had received a blow in the left eye the 15th of April, 1902, from the knee of a mule. There was great ecchymosis, the vision was lost, the lids closed and the globe immovable. On the 19th of June there was ptosis but no wound of the lids, exophthalmos absolute immobility of the eye which remained in a position of strabismus up and out, mydriasis and optic atrophy. Below the superior orbital arch at the level of the supra orbital notch was found a piece of wood (a fragment of a paint brush handle) 0.047 m. long by 0.008 m. thick). After operation the wound healed and exophthalmos diminished but the eye remained otherwise the same. The case was interesting for two reasons: 1. The penetration and lodgment of a foreign body in such a position without injury to lid or globe, and 2. The two months' tolerance of a septic foreign body within the orbital fat. The rectus superior had been injured—the levator also—and the nerve had been compressed or severed.

Dr. Montano had observed a similar case, where the patient had received a blow in the left eye, the foreign body passing through the ethmoid to severe the optic nerve of the opposite side. (See the Anales de Optalmologie, June, 1902). He had wished to try to suture the optic nerve but abandoned the idea as he thought two months after the injury too late.

Dr. Chacon told of a case in which a girl of 4 fell on a piece of wood which passed through the left lower lid, somewhat above the orbital notch and to the right of the perpendicular orbital meridian, lodging within the orbital fat. The stick then broke leaving in the wound a fragment 33 mm. long. This foreign body was directed directly backwards and a little upwards, it displaced the eyeball, elevating it and turning it in such a manner that the cornea was directed upward; but there was no pain. The lower lid was ectropionized, the upper œdematous. The next day the foreign body was drawn out by forceps, and the eyeball and lower lid returned immediately to its normal position, and no further disturbance developed.

Dr. Chanez remembered a similar case in which the injury had been done by a pencil at the region of the lachrymal sac, but here there had resulted an epiphora and loss of vision. Later Dr. Lopez extracted a thick piece of the pencil which had remained sometime within the orbit. He thought that in Dr. Vélez' case it was unnecessary to explain the atrophy by severance of the nerve; compression would be enough. The strabismus might be due to paralysis of the oculomotorius.

Dr. Vélez thought the explanation was an injury to the muscles rather than to the nerves. The optic nerve can be divided by a blunt body pressing the nerve against the sharp edge of the bone.

SECTION ON OPHTHALMOLOGY—COLLEGE OF PHYSICIANS OF PHILADELPHIA.

Meeting, October 21, 1902. Dr. William Thomson, chairman, presiding.

Dr. H. F. Hansell exhibited a man, aged 22, with *Multiple Rupture of the Choroid,* partial dislocation of the lens, and transient glaucoma, following a forcible blow upon the left eye with an iron bolt. Blindness of several days' duration followed. A period of partial recovery ensued, which was again replaced by almost complete loss of sight and an exceedingly hard eyeball. Tension was reduced to +1 by the local use of eserin and pilocarpin sweats, but the peculiar congestion of the eye, suggestive rather of general uveitis than glaucoma, the slightly dilated and almost immovable pupil, the different depths of the anterior chamber, and the slowness of recovery prompted the withdrawal of the eserin and the substitution of atropin. This was immediately followed by decrease in the congestion, subsidence of the intense pain, and rapidly improved vision. The treatment was continued until the man left the hospital. The case is interesting: (1) From the combination of multiple rupture of the choroid, subluxation of the lens, and posterior glaucoma. (2) The value of atropin treatment under certain conditions of traumatic glaucoma. (3) The presence of the symptoms noticed by other observers in partial dislocation of the lens, of the waving and trembling of lines. (4) The increase in the refraction of the eye.

Discussion.—Dr. de Schweinitz had recently seen a similar case in which all the symptoms of an acute glaucoma appeared after a severe blow upon the eyeball. The pupil was dilated and the lens subluxated. Immediate relief of the pain and increased tension followed the use of eserin, but at the end of thirty-six hours the symptoms were rendered worse by the eserin and then relieved by scopolamin. Dr. Randall cited an instance of subluxation of the lens, causing 5 D of astigmatism, which later disappeared. He believed that more than subluxation of the lens was necessary to produce symptoms of increased tension, and mentioned a case recently seen by him of partial dislocation of the lens into the anterior chamber, where glaucoma might have been expected to occur, in which tension remained normal. Dr. Harlan remarked that atropin does not always produce glaucoma, even where there is a predisposition to the disease. He had attended a woman in an acute attack, for which eserin was ordered as a temporary measure preliminary to an iridectomy, the symptoms being entirely relieved by duboisin that was furnished through an error of the druggist. Dr. Hansell thought that some other explanation than blocking of the filtration angle must be given to account for the transient increase of tension following injuries of the globe. He believed that there occurred a collection of fluid in the vitreous chamber which, by pressure, retarded the outflow of blood from the large venous trunks, and resulted in the glaucomatous symptoms. Dr. Risley thought that the glaucoma following cataract extraction might be explained by the presence of vitreous in the anterior chamber, which blocked the filtration angle, and that the subsidence of the increased tension followed the settling back of the vitreous into its proper position.

Dr. William Campbell Posey showed a case of *Intense Phlegmon of the Orbit Secondary to the Empyema of the Ethmoid,* which presented all the signs of an idiopathic orbital cellulitis. For a time incision into the tissues of the orbit seemed to be necessary, but the discovery of a purulent nasal secretion, and the subsequent drainage of a copious amount of pus from the ethmoidal cells, after removal of a part of the middle turbinate, showed the orbital affection to be secondary to that of the accessory sinus. The excruciating pain at the back of the eye and in the temple, the great proptosis, and the swelling of the lids, rapidly subsided after the evacuation of the pus. The eye became blind about a week after the appearance of the initial symptoms and remained so even after the globe had returned to its normal position and all signs of inflammation had disappeared. The optic nerve was pale and the retinal circulation reduced. There had been no neuritis. Attention was directed to the importance of a thorough examination of the nose and its accessory sinuses in all cases of orbital cellulitis, and the advantage of evacuating the contents of the affected sinus through the nose, when this was possible, rather than by an orbital incision.

Dr. C. A. Veasey reported a case of *Spontaneous Perforation of the Cornea,* with prolapse of the iris, occurring in the center of a small macula, which followed an attack of purulent conjunctivitis and ulceration six years before. The patient was a young, healthy woman. The perforation occurred without premonition, and without violence of any kind. There had been no inflammatory symptoms, nor could any change be detected with a corneal loupe. The perforation did not close until the twentieth day.

Discussion.—Dr. Ziegler explained the few cases of spontaneous rupture of the cornea that he had seen as due to calcareous degeneration; the rubbing of the lids across the affected area thinning the corneal layers and leading to perforation. In reply to a question of the chairman, Dr. Veasey said that the woman was free from any systemic disease, and was not anemic.

Some Metallic Foreign Bodies in the Interior of the Eye Localized by Sweet's Method of Radiography and Removed with the Magnet. Dr. G. E. de Schweinitz referred to five cases of metallic foreign body detected in the interior of the eye by the Roentgen rays which had come to his service in the University Hospital during the past month.

1. Metallic foreign body embedded in the choroid for five weeks prior to examination; hemorrhagic area in the retina and detachment of its lower and nasal portion; V. = hand movements. Foreign body removed through a small scleral incision made at a point indicated by the X-rays as the position of the foreign body, the tip of a Sweet magnet having been placed near the wound but not within it. Uninterrupted healing followed, with retention of the same vision existing prior to the operation.

2. Traumatic cataract sent for extraction; X-rays revealed foreign body in the lower ciliary region; removed in the same manner as previously described; uninterrupted healing; V. = good light projection in all portions of the field; cataract to be subsequently extracted. Foreign body had been embedded for more than two months, but its presence was unsuspected.

3. Foreign body embedded in the choroid beyond the macular region for six months; media clear, so that the mass of exudate which surrounded the body could be seen with the ophthalmoscope although the body itself was not visible. The point of the magnet applied to the sclera over the region described produced sharp pain and was followed by a displacement of the foreign body; subsequent X-ray examination confirmed its presence. The magnet placed at the lips of a scleral incision failed to extract the body. The introduction of the extension point of the magnet within the vitreous was similarly unsuccessful. The eye healed without serious reaction. V. = hand movements owing to an extensive detachment of the retina which had existed prior to the magnet operation. Subsequent X-ray examination failed to detect the body, rendering it possible that it might have come away and escaped detection.

4. Foreign body in the lower and inner ciliary region, embedded for two days; eye already infected when seen; pus in the anterior chamber and discolored iris. Foreign body drawn by means of the magnet into the anterior chamber after the manner advised by Haab, and extracted through a corneal incision; subsequent evacuation of the lens and packing of the anterior chamber with iodoform rods in the manner suggested by Haab and Ostwalt. Case too recent to state ultimate outcome, but panophthalmitis has not supervened and the eye is improving.

5. Traumatic cataract with the history of foreign body, which was, however, not visible; X-ray examination revealed its presence

in the posterior portion of the lens; case to be submitted later to operation for removal of the lens.

Dr. de Schweinitz, while perfectly assured of the great value of the giant magnet, and of the propriety in a certain number of fresh cases of drawing the foreign body into the anterior chamber after the manner described by Professor Haab, believed that with exact methods of localization, especially when the foreign body has existed for a long period of time, there was less disturbance likely to follow if a small scleral incision was made directly over the position of the foreign body, and it was removed through this incision without the introduction of the extension point of the magnet within the vitreous cavity, than if the body was drawn into the anterior chamber. In this respect he found himself in entire accord with a recent paper of Dr. Risley's. He referred to the interest attaching to the successful extraction of these bodies when they had remained for considerable periods of time in the eye, although the one that had been there longest was not secured—at least, it could not be demonstrated that it was secured. The importance of submitting cases of traumatic cataract to X-ray photography was illustrated by two of the cases.

Discussion.—Dr. Risley reiterated his belief in the superiority of extraction through a scleral incision close to the previously determined position of the body, as compared with the employment of powerful magnets to draw the metal through the vitreous into the anterior chamber. When bodies had remained in the eyeball for long periods, there was the additional danger of tearing loose the retina in the use of magnets of strong attractive power. In a recent case of a long narrow piece of steel in the vitreous for two days he had an opportunity of watching the body when the magnet was applied, the metal making a complete turn in the vitreous, the blunt end appearing first at the scleral wound. Dr. A. G. Thomson referred to the suggestion made by Dr. Kipp to take advantage of this magnetization of the metal in the eye by the construction of a magnet the polarity of which could be rapidly changed, believing that in this way particles might be loosened from the tissue in which they were embedded. Dr. Sweet stated that the position of the metal in the eye affected to a great extent the rapidity with which it was covered by exudate. Comparatively few bodies reach the interior of the eye with sufficient force to embed themselves in the retina or choroid, the majority dropping to the lower portion of the vitreous after entering the eye. When the metal is situated near the ciliary body, a mass of new tissue may form about it in a few days, whereas several weeks may elapse before bodies located back of the equator are similarly covered. Dr. William Thomson recalled a case which he had previously reported showing the power of attraction of the Sweet magnet. The metal was situated above and to the temporal side of the equator. When the magnet was placed at the wound of entrance near the ciliary body, the steel passed through the length of the vitreous and was extracted. Dr. Zentmayer instanced a case of failure of the giant magnet to extract a particle of iron from its situation near the macula, the metal being removed subsequently by the point of the Johnson magnet inserted to the situation indicated by the X-ray pictures.

William M. Sweet,
Clerk of Section.

Bull gives a summary of the postoperative history of 50 cases of simple chronic glaucoma (*Medical News*). In 7 cases, under observation for a period varying from 15 months to 11 years, the fields remained as they were at the time of operation. In 6 of these 7 cases the vision grew slowly worse and in one case the vision was somewhat improved. In 5 cases the vision remained as it was at the time of operation, or improved while the fields grew narrower. Age, in itself, did not seem to exercise any definitely bad effect, for some of the most satisfactory results occurred in patients over 70 years of age. The best results as to ultimate vision occurred in the cases in which the central vision was the best and the fields were the least encroached upon at the time of operation, or, in other words, as soon as the existence of the disease was definitely established. A careful study of these cases has lead Bull to the conclusion that, when the disease undoubtedly exists in both eyes of a patient, better results as to visual acuity and the field of vision are obtained by a simultaneous operation on the two eyes. The curative action of iridectomy stands in direct proportion to the increase of tension. Done early, it offers the best prospects for the arrest of the process and its effects are either permanent or very prolonged. [T. L. C.]—*P. M. J.*

ABSTRACTS.

ABSTRACTS FROM RECENT OPHTHALMIC LITERATURE.

BY G. E. DE SCHWEINITZ AND E. A. SHUMWAY.

Clinical and Bacteriological Observations on Influenza—Conjunctivitis in Infants.—I. Jundell (*Mitteilungen aus der Augenklinik des Carolinischen Medico-Chirurgischen Instituts zu Stockholm. Viertes Heft,* 1902) reports 9 cases of conjunctivitis occurring in infants, during an epidemic of influenza in the Children's hospital of Stockholm. The secretion was carefully examined in each case before the diagnosis was made. Six cases were quite light in character, with but little swelling of the conjunctiva, and comparatively thin secretion. In two others the symptoms were much more marked, the eyelids being reddened and swollen, and the purulent secretion from the conjunctiva more abundant, while the last was of a severe purulent type, resembling gonorrhoeal conjunctivitis. All healed without complications. Both eyes were affected in all of the cases, and the author believes that the affection was secondary, some of the secretion from the nose or throat being introduced into the conjunctiva. He is of the opinion that the Weeks bacillus is identical with the influenza bacillus, and that the pseudo-influenza bacillus (Pfeiffer), the pertussis bacillus (Spengler), and the trachoma bacillus (Müller) are probably the same organism. The cultural peculiarities are so variable, that they are not characteristic, and he does not believe that the diagnosis of influenza conjunctivitis can be entirely excluded in epidemics of acute conjunctivitis due to the Koch-Weeks organism.

Histological Artefacts in the Optic Nerve.—Elschnig (*Klin. Monatsbl. f. Augenheilk.* Aug.-Sept., 1902) claims that the changes in the optic nerve described in Siegrist's elaborate article in the Archiv. f. Augenheilk, xliv. Ergänzungsheft (abstracted in this journal, May, 1902), as punctate fatty degeneration of the nerve fibers, are pure artefacts, due to mechanical injury to the nervous tissue in removing the specimen, especially from the bony canal. He instituted a series of experiments on fresh nerves removed from cadavers, removing them roughly from the bony canal, striking them with the back of a knife, or crushing them between the branches of a pair of forceps. In all of the nerves thus treated he was able to produce exactly the conditions which Siegriest had detailed; distortion of the nerve fiber bundles, producing in one position cavities partly filled with granular detritus; in others an increased number of fibers, irregularly twisted together, and apparently crossing the pial septa; degeneration of the fibers, etc., whereas the control preparations, removed carefully, were free. Such changes are also well known in the portion of the nerve near the section made in enucleating the eye *in vivo.* He urges, therefore, that the greatest care be exercised in the future, in securing the nerves from the cadaver. They should be removed by well trained hands, and should never be grasped roughly with forceps. If the entire nerve is to be investigated, the bony canal should be chiseled out with the nerve *in situ,* and the nerve removed very carefully after the specimen has been thoroughly hardened.

Adenoma of Krause's Gland.—Rumschewitsch (*Klinische Monatsbl. f. Augenheilk.* Aug.-Sept., 1902) describes a case of adenoma of Krause's glands in the upper lid, and two cases of simple hypertrophy of the plica semilunaris. The latter produced epiphora by interfering with the outflow of the tears through the canaliculi.

In the same journal Steffans reports a case of *Angioma of the choroid,* with extensive ossification, associated with telangiectasis of the face.

Postoperative History of Simple Glaucoma.—Bull (*Medical Record*) gives a review of the preöperative condition in the 50 patients. After iridectomy there was temporary improvement in central vision in 7 eyes, permanent in 3, immediate failure in 2, gradual failure in 58, maintenance of vision existing at time of operation in 24 from 2 to 18 years. Tension was demonstrated immediately in 89 eyes, permanently in 18, no effect in 5. The form field was unchanged in both eyes in one case and in one eye in two cases; it was widened in one eye in one case, in 11 the result was absolute glaucoma; in the remainder the field was narrowed in various ways. The best results as to ultimate vision occurred in the cases in which central vision was the best and the fields least encroached on at the time of operation, those operated on as soon as the existence of the disease was established. Simultaneous operation on both eyes gives the best results. The curative action of iridectomy stands in direct proportion to the increase of tension. If performed while the iris is still mobile, the field but little contracted and the cupping slight, it often arrests the disease, at least for a long time, and preserves what sight remains. [H. M.]—*Am. Medicine.*

NEWS ITEMS.

PERSONALS AND ITEMS OF INTEREST SHOULD BE SENT TO
DR. BROWN PUSEY, 31 WASHINGTON ST., CHICAGO.

Dr. Ernst Hertel has been appointed Professor of Ophthalmology in the University of Jena.

Dr. Percy H. Friedenberg was recently elected Secretary of the Harlem (N. Y.) Medical Association.

Dr. Geo. Huston Bell has been appointed an Assistant Surgeon to the New York Eye and Ear Infirmary.

Mr. J. B. Story, F. R. C. S. I., has been appointed Surgeon Oculist-in-ordinary to the Lord Lieutenant of Ireland.

Under the will of the late Mary Louise Ruggles, of Boston, the Massachusetts Charitable Eye and Ear Infirmary receives $3,000.

Drs. Edgar H. Irvin and Albert Wilkinson will have charge of the eye work in the Providence Hospital, which has recently been incorporated at El Paso, Texas.

Theodore F. C. Van Allen died at his home in Albany, New York, October 28th. At the time of his death Dr. Van Allen was the Ophthalmic Surgeon at St. Peter's Hospital, Albany.

Drs. Archibald G. Thomson, and Charles J. Jones have been appointed Assistant Surgeons, and Drs. Homer J. Rhode and Arthur J. Bedell have been appointed Resident Physicians, at Will's Hospital, Philadelphia.

In the November number of the Masonic Advocate (Indianapolis, Ind.) there is a tribute to Dr. George F. Keiper, who was recently elected Illustrious Grand Master of the Grand Council of Royal and Select Masters of Indiana.

Dr. Harry Friedenwald has been elected Professor of Diseases of the Eye and Ear in the College of Physicians and Surgeons of Baltimore. In this Professorship, Dr. Friedenwald succeeds his father, the late Dr. Aaron Friedenwald.

A new building with a frontage of 57 feet and a depth of 112 feet will be added to the Episcopal Eye, Ear and Throat Hospital, of Washington. The lot has been bought, and over $11,000 have been subscribed and paid into the treasury as a building fund.

The Therapeutic Monthly will hereafter be incorporated with the Philadelphia Medical Journal. The intention of the latter Journal is to jublish once a month, a special therapeutic department. The department editor for ophthalmology is Dr. Thomas H. Fenton.

Dr. Beverly Randolph Kennon, of Norfolk, Va., and Dr. John P. Davidson, of Richmond, Va., had their vacations together in Canada. Dr. J. A. White, of Richmond, spent the summer in Europe. Dr. H. T. Myers, of Norfolk, spent his vacation in the mountains of Virginia.

The Egyptian Medical Congress will be held at Cairo, December 19th to 23rd. The principal object of the Congress is the study and discussion of diseases occurring in warm climates. The Congress is divided into four sections, one of which is the section of ophthalmology. The president of the ophthalmologic section is Dr. Mohamed Bey Eloui; the principal subject for discussion in this section will be Egyptian ophthalmia.

The newly elected Governor of California is Dr. George D. Pardee. In the ophthalmic world this name is very familiar, and in his new honors Dr. Pardee has the congratulations of all of us. Dr. Pardee has been in practice up to the very present. It is of interest to know that Dr. Pardee has long taken an active part in public affairs, in spite of the large practice in ophthalmology, which he and his father have enjoyed.

Dispatches in the morning papers record the murder, on the 11th of November, of Dr. W. H. Kimberlin, a prominent ophthalmologist of Kansas City, Mo. The deed was done by John Scanlon, who, according to the dispatches, was a former patient of Dr. Kimberlin. The newspapers say that Scanlon had recently been told by an oculist of St. Louis that he would soon go blind as a result of improper treatment (it is greatly to be hoped that this is not true), and Scanlon, who committed suicide, left a letter in which he accused the doctor of having ruined his eyes, and gave this as the motive for the crime.

The newspapers and medical journals have had much to say lately on the subject of trachoma in New York City. The following is from the New York *Sun:* "Last spring Dr. Lederle's examiners found in only 36 schools more than 6,000 pupils suffering from this contagious disease. Not one of the 36 schools was free from the disease. It was more prevalent in the schools of the lower East Side, but it had extended everywhere. The percentage of diseased pupils varied from 3.2 per cent in one of the better class West Side schools to 22.2 per cent in an East Side school. Boys were found with it more frequently than girls. In one school the percentage among the boys ran up to 28 per cent. Of the 6,670 pupils found with the disease in these 36 schools, 30 per cent were affected in so severe a form that an almost immediate operation was necessary. On the first day of the new school year 573 pupils were turned away by the health department's examiners because of contagious eye disease, in almost every instance trachoma."

An interesting comment on this subject is the following note, which is quoted from a personal letter from a prominent New York oculist: "It is true that there have been a great many more cases of trachoma at the Infirmary (New York Eye and Ear) this year than formerly, but I think it is due, in a great measure, to the more careful examination of school children. There has been a considerable amount of money appropriated by the City, which means that a more intelligent class of physicians are giving their time to school examination of children. In several districts I know of oculists who are doing it. So you see that is one reason for the increase of cases at the Infirmary. In October, at the Infirmary, there was an increase of about 750 new cases. I think, also, that trachoma is on the increase."

Contagious Conjunctivitis.—Standish (*Boston Medical and Surgical Journal*) has found that a large proportion of the cases of acute catarrhal conjunctivitis can be aborted by dusting iodoform into the sac two or three times at intervals of 12 hours. Ophthalmologists who deny the contagiousness of trachoma must confuse it with follicular conjunctivitis. The author describes the characteristics of each. Trachoma formerly constituted 20 to 25 per cent of the cases treated as out-patients at the Massachusetts Eye and Ear Infirmary. The number is now reduced to 3.5 per cent. This is due to the exclusion of trachomatous immigrants and also to improvement in treatment. The latter consists in expression of the granules, Prince's forceps being preferred, and subsequent antisepsis, bichlorid 1-500 being vigorously rubbed into the surface. The effect is prompt, the lids opening perceptibly wider in 24 hours. Corneal complications are rare and in one or two years the disease is cured without visible cicatrices in either conjunctiva or cornea. The average duration of the patients' stay in the hospital has been reduced from 64.5 to 29 days and the danger of infecting others much lessened. Ophthalmia neonatorum is now treated only in the wards, the child being separated from its mother. There were only four deaths in 82 admissions in 1901, a small percentage considering the weakly and otherwise diseased condition of most of these patients. By flooding the conjunctiva with protargol and thus avoiding the mechanical injury to the cornea in applications of silver nitrate, the proportion of unsuccessful cases and time required for treatment have been distinctly reduced. The unaffected eye is thickly covered with iodoform, cotton and collodion. By using 20 per cent solutions of protargol all corneal complications have been avoided in those having a clear cornea on admission. In 12 patients with infiltrated ulcers treated immediately by the keratotomy of Saemisch 9 retained a clear cornea over the pupil. In diphtheritic conjunctivitis treatment with antitoxin has given most gratifying results. Diagnosis must rest on the clinical picture since laboratory processes are too slow. Blindness and pauperism have been remarkably reduced by improved treatment in these diseases. [H. M.]—*Am. Medicine.*

Paul le Maire contributes an instructive article on the uses of adrenalin (*Jour. de Med. et de Chir. Prat.*, June 25th, 1902). Adrenalin has the property of momentarily arresting the circulation in those situations in which it can be directly applied. This substance was first separated from the suprarenal capsules by Takamine of New

York. It is crystalline in character, fairly soluble in water, and is supplied in the form of tartrate or solution 1 per 1,000. Tartrate in the form of tabloids is deliquescent, and can be dissolved when required in any strength. The solution consists of adrenalin chloride 1 gram, normal saline solution 1,000 grams, chloretone 5 grams. The latter is a compound formed by the action of potash on equal parts of chloroform and acetone. It imparts slight antiseptic and anaesthetic properties to the solution. Adrenalin is extremely powerful, 1 in 50,000 will cause pallor of the conjunctiva in one minute. When used as an intravenous injection it causes muscular contraction, especially in the vessels, thus bringing about a rapid rise in the blood pressure. It is a cardiac stimulant, and is neither irritant nor toxic, and is without cumulative action. Subcutaneous and intraperitoneal injections may cause glycosuria. In very strong doses its action is fatal, and destruction of the pancreas has been observed. Adrenalin may be used in cases of opium and morphine poisoning owing to its stimulating action on the respiratory and vascular systems. It is also useful in cases of circulatory and cardiac failure and in collapse during anaethesia. Its chief use, however, is in local affections of the eye, nose, larynx, and ear to reduce the congestion. In acute and chronic and inflammatory seizures, such as coryza, conjunctivitis, acute oedema, etc., its action is very marked, haemostasis being rapidly produced. In some cases a subsequent vaso-dilatation has been noticed, and it has been considered by some observers that secondary haemorrhage is more liable to occur after the use of adrenalin. The writer quotes many ophthalmic surgeons as having obtained good results in conjunctivitis by instillation. It does not seem to exert any deleterious action on the corneal epithelium and has no action on accommodation or the size of the pupil. In fact, it is in cases of conjunctivitis that the most striking results have been obtained, especially as the presence of chloretone enhances the sedative effect of the solution of adrenalin. The writer considers that in adrenalin we possess a substance of very great value in all cases of severe and painful congestion, where its local application is possible.

Trip to the International Medical Congress.—It is reported that many physicians will attend the International Medical Congress at Madrid, April, 1903. Arrangements have been made for a party of physicians from the eastern states. The trip from New York and return will require about one month. Physicians and members of their families who join this party will be entitled to the special rate of $265 for the round trip, including first-class passage on the steamer and railway, hotel accommodations for 14 days in Spain, including room, meals, all handling of baggage, special interpreter and fees. The trip will be via Gibraltar and Cordova to Madrid. There will be side trips to interesting parts of Spain at extra cost, and also returns by other routes for those who desire. Physicians in the eastern and middle states may secure more information from Dr. Ramon Guiteras, 75 West 55th street, New York.—*Jour. A. M. A.*

International Congress at Madrid.—The American Committee of the Fourteenth International Medical Congress announces that the following list of sections has been authorized:

1. Anatomy (Anthropology, Comparative Anatomy, Embryology, Descriptive Anatomy, Normal Histology and Teratology).
2. Physiology, Physics and Physiologic Chemistry.
3. General Pathology, Pathologic Anatomy and Bacteriology.
4. Therapeutics and Pharmacy.
5. Internal Pathology.
6. Nervous Diseases, Mental Diseases and Criminal Anthropology.
7. Pediatrics.
8. Dermatology and Syphilis.
9. General Surgery.
10. Ophthalmology.
11. Otology, Rhinology and Laryngology.
12. Odontology and Stomatology.
13. Obstetrics and Gynecology.
14. Military and Naval Medicine and Hygiene.
15. Hygiene, Epidemiology and Technical Sanitary Science.
16. Legal Medicine and Toxicology.

Subscriptions (25 francs, which is about $4.75) must be paid before the opening of the congress to the general secretary, Faculty of Medicine, Madrid, and members should on paying the subscription state the section or sections to which they wish to belong. The Spanish committee of entertainment announces that the daily charge per person for lodging, service, light and three meals is, in hotels, from $2.50 to $7.00, and in private houses from $1.75 to $4.25. These sums include transportation from the station to the lodging and from the lodging to the station. As it is expected that Madrid will be crowded those who are to attend the congress are advised to apply for rooms as soon as possible to the Bureau des Logements, Faculte de Medicine, Madrid. Blank forms for these applications may be obtained on request from the secretary of the American committee. The Spanish committee on transportation makes no provision for trans-Atlantic travel. Their arrangements are made for receiving visitors at the port of entry and for transportation to Madrid. The French and Spanish railroads have granted delegates a general reduction of one-half on the fares. In the United States the Trans-Continental Passenger Association advises delegates to use the regular nine months' rate from Pacific points to Missouri river points. The American secretary is Dr. John H. Huddleston, 126 W. 85th street, New York.—*Jour. A. M. A.*

THE ACCURACY OF EUROPEAN RETINOSCOPY.—*To the Editor:* —In *The Journal* of Nov. 1, 1902, page 1107, Dr. Geo. M. Gould, of Philadelphia, uses the following language: "That there is probably not an 'ophthalmic surgeon' in all Europe who can use this method (retinoscopy) with accuracy shows how far we are as a profession from knowing our science, practicing our art, or doing our duty."

I admire Dr. Gould in all his scientific work and can follow his enthusiasm wherever it may lead, but I can not pass uncorrected such language from the editor of *American Medicine*, who has always advocated accuracy in language and diagnosis. To commit such an unpardonable sin of ignorance and unwarrantable discourtesy to foreign confrères is to belittle his own argument. I have recently had the pleasure of a rather extensive tour through some of the best of German university hospitals, and in nearly every clinic I saw retinoscopy practiced as a routine method, and instruction given to students by competent assistants in refraction with this method as a guide. Recent German periodic literature has numerous examples and illustrations of the method of teaching retinoscopy. At the Heidelberg Congress (August, 1902) Pflüger of Berne presented for approval the most elaborate apparatus I ever saw, and stated that it was only after use in his own clinic that he brought it to our notice.

In one private hospital—not belonging to a university and not used for teaching—the resident oculist spent over an hour a day in his dark room with the retinoscope estimating the refraction of the patients.

I have no doubt that the accuracy of these men would meet Dr. Gould's approval. Germans have long ceased to belittle the work of Americans, and we must avoid the error of supposing that what is done well here is therefore ignored or done ill there.

Albert B. Hale, M. D.

103 State Street, Chicago, Nov. 1, 1902.

COMMENT BY DR. GOULD.

To the Editor:—In reference to the courteous note of Dr. Hale I would say that in my opinion:

1. The best method of retinoscopy, when carried out by the most expert, is not trustworthy when subjective methods are possible with intelligent people.

2. No method of retinoscopy is accurate, not even the best one, except under cycloplegia. The Germans do not use cycloplegia.

3. The only use of retinoscopy advocated in my paper was for children. The Germans do not refract little children of from 2 to 6 years of age.

4. The great value of refraction is to diagnose and correct astigmatism. The Germans do not diagnose, correct or care for astigmatism, at least in those minor degrees, which produce the greatest eyestrain.

5. The method of retinoscopy used by the Germans is the old-fashioned one of Cuignet, which is utterly inaccurate and untrustworthy. The new method of Thorington, Jackson and other Philadelphia oculists is unknown, and their books untranslated in German.

6. It is not a question of "discourtesy" or "belittling." It is simply one of accuracy in statements. Mine were, and remain, absolutely true.

Geo. M. Gould.

Philadelphia, Nov. 6, 1902.

—*Journal A. M. A.*, Nov. 15, 1902.

THE
OPHTHALMIC RECORD
A MONTHLY REVIEW OF THE PROGRESS
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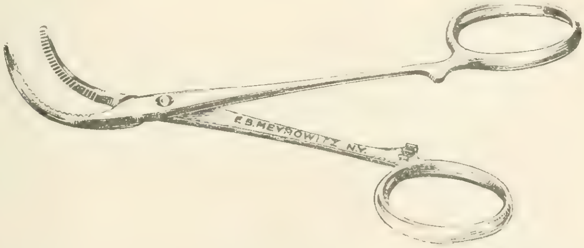
ORIGINAL ARTICLES.

HEMOSTATIC FORCEPS FOR USE IN THE ORBIT.

BY LUCIEN HOWE, M. D.
BUFFALO, N. Y.

Illustrated.

Most operators have been annoyed by troublesome hæmorrhage when attempting to remove sarcomatous growths and other tumors from the orbit. In order to control this bleeding, forceps have been constructed which proved so serviceable as apparently to warrant brief mention. They are so simple also that an illustration shows their form and suggests their use. Each pair consists of a scissors-like clamp, curved on the flat, with just sufficiently curved to pass conveniently into the orbit and well behind the globe.



When a tumor is to be removed, one such clamp or pair of forceps is introduced into the orbit, from one side, clasping half of the tumor or more, as far back as possible, and a second pair being introduced in a similar manner, opposite the first, the entire tumor is thus grasped at its base. It can be cut loose then with little or no loss of blood, the stump can be cauterized, or ligatures applied before the forceps are removed. Their simplicity and efficiency appear to warrant this word concerning them.

REPORT OF THREE CASES OF CONGENITAL PUNCTATE CATARACT.

BY J. G. PARSONS, M. D.,

BROOKINGS, S. D.

Illustrated.

The writer has recently had under observation some cases of punctate cataract which present some interesting features.

Two sisters aged eleven and thirteen, respectively, were brought for examination, thinking that they could be helped by glasses. They both gave history of being unable to see clearly at distance, and were unable to read writing on the blackboard at school. No headaches or other asthenopic symptoms were complained of, nor was there any history of inflammatory conditions nor of injury.

Suspecting myopia, an attempt at refraction was made.

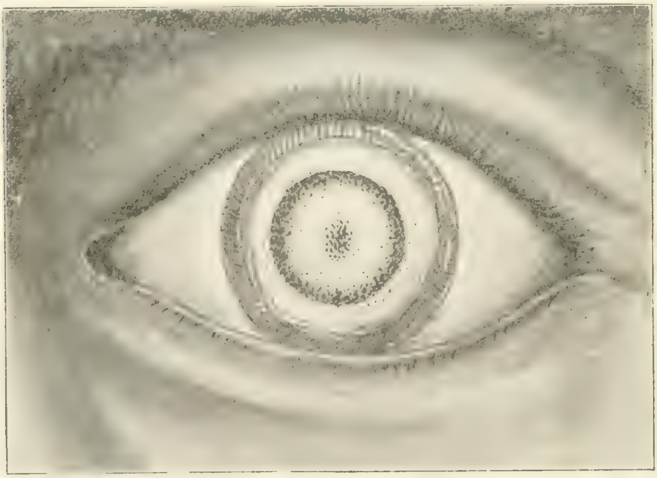
Ophthalmometer O. S. 2.00 ax. 90 +, 180 —.
O. D. 1.50 ax. 90 +, 180 —.

O. S. V. 20/110, 20/80 with — 1.25 c. ax. 180.

O. D. V. 20/110, 20/80 with — .75 c. ax. 180.

Reads D. 1. at six inches. No further improvement could be made with spherical lenses.

Under homatropin no change in vision was noted. Ophthalmoscopy reveals the presence of cataracts as illustrated by drawing.



Fundus reflex shows brightly around periphery of lens, but on closer examination fine pigment specks are seen near the edge. The whole circumference of the lens is densely pigmented, allowing no passage of light through it. Toward the center, the pigment is more scattered, gradually merging into individual specks.

In the center is a triangular area of dense pigmentation becoming less dense and merging into individual specks toward the periphery. Between the two areas the fundus reflex shows through studded with numerous fine specks.

The specks can be made out at different depths in the lens, and on the capsule. They are irregular in shape, and it is not possible to distinguish a clear center in the individual spots as described by Zirm.

As will be seen from the drawing, there is no tendency to arrangement of the specks along the lines of lens sectors, nor anything resembling a stellate arrangement.

The above description will hold good for all three cases observed. The refraction and vision in the two sisters is practically the same. The mother of these girls gives in the main the same conditions, excepting that her vision is 20/80, and that the areas of pigmentation are more circumscribed.

All three notice that their vision is poorer on bright days, and that they can see best on dull days and toward night (hemeralopia).

The mother informs the writer that her mother had the same condition. Her vision remained about the same until the time of her death. No other cases are known of in the family. None of the male members were affected.

All three cases are congenital, and have noted no change in their condition, with the exception that the younger girl thinks her vision has decreased lately.

The mother states that the girls are fond of reading, and do well at school.

HETEROPHORIA.

BY MELVILLE BLACK, M. D.,
DENVER.
Professor Ophthalmology Denver and Gross Medical School, etc.

Case 1. Miss A., age 35, stenographer, consulted me February 2nd, 1901, complaining that she had been unable to follow her occupation because of headaches, vertigo and pain in eyes. She has an astigmatism of O. D. + 1. ax 70°. O. S. + 1. ax 135°, with manifest hyperphoria O. S. of 5°, and esophoria of 5°. She was given the above cylinders with a 2° prism over each eye, right base up and left base down. She wore this correction for two months with great relief, when increasing discomfort began. She then manifested 8° exophoria and 5° left hyperphoria. A tenotomy was now performed upon left superior rectus with complete correction of hyperphoria. In a few days' time she manifested a right hyperphoria of two degrees with exophoria of seven degrees. A tenotomy was now performed upon right external rectus, the capsule being cut more below than above. The result next day showed orthophoria. Four months later only two degrees exophoria remained. She is now wearing her astigmatic correction and is doing active work as a stenographer without discomfort from her eyes.

Case 2. Miss M., age 24, consulted me the 6th of last March, complaining of incessant headache for two weeks, with dizzy spells and double vision. Has also palpitation of the heart. Her error of refraction was + .25 cyl. ax. 15° in both eyes. She manifested a right hyperphoria of 2½°, exophoria 10°. She was given Gould's method of exercising the interni in my office once daily for 16 days, during which time she wore, with her cylinders, a 2° pr. base down over right eye. Seven days after beginning the exercises she manifested right hyperphoria 5½°, with exophoria of 7°. She was now given a 3° pr. base up over left eye, making 5° vertical prism correction, and the exercising continued for the interni. At the expiration of 16 days of the exercise she could overcome with interni 40° of prism, and yet with red glass over one eye she had a crossed diplopia of 10°, and a vertical diplopia of 5°. I then tenotomized the right superior rectus leaving no hyperphoria, next day no hyperphoria. The fourth day after operation she had a left hyperphoria of 2°, with exophoria of 10°. Two days later I tenotomized left externus leaving no exophoria. On April 14th she manifested 4° left hyperphoria and 1½° exophoria. She had diplopia in the external left field.

On May 3rd left hyperphoria 2°. I tenotomized left superior rectus leaving no hyperphoria. This operation put an end to all diplopia. Shortly after she went east and did not return to see me until September 6th. I now found exophoria 8°, no hyperphoria, and as she was having a great deal of headache still, I tenotomized the right external rectus leaving esophoria 3°. I have seen her several times since and find she is now orthophoric and free from her former symptoms.

Case 3. July 3rd, 1902, Miss B. W., aged 19, consulted me for attacks of very severe pain in head, numb hands and feet, with inability to say what she wants to. Examination of eyes showed a small error of refraction, + .50 ax. 180° in each eye, with a manifest exophoria of 8°. The cylinders were prescribed with 3° prisms over each eye bases in. She reported a month later that she had been much better, and that only within last few days had she had one of her attacks of megrim. She now manifested exophoria 9½° and accordingly her prisms were increased to 4½° over each eye bases in. A week later she manifested exophoria 16°. I then tenotomized the left external rectus, leaving orthophoria. Two days later exophoria 8°, and ten days later exophoria 7°. The right externus was now tenotomized, leaving esophoria 1°. The next day exophoria 2°, and two days later orthophoria. I have not seen this patient since as she does not live in Denver, but reports from her are that she is having no more attacks of megrim.

Case 4. August 8th, 1902. Miss J. E., age 20, consulted me because of lately having terrible headaches, and has double vision. She has worn glasses for five years. Thinks eyes have always been weak. She has an error of refraction of + 0.50, with a manifest left hyperphoria of 6°. After several tests, and finding this amount of hyperphoria permanent I tenotomized the left superior rectus leaving two degrees of left hyperphoria. At present writing she has a left hyperphoria of one degree. She is fairly comfortable and I shall await further developments before doing anything more.

Case 5. Miss O. M., age 16. August 28th, 1902, she consulted me because of almost continuous headache. Does not know if use of eyes aggravates it. She is emetropic, and manifests 14° exophoria. Five days later a tenotomy was performed upon left external rectus leaving 6° exophoria. Six days later she manifested 8° exophoria, when tenotomy was performed upon the right externus, leaving esophoria 3°. Five days later she had exophoria of 3°, and at present writing exophoria 4°. She is not having headache and I shall not do anything more until further symptoms warrant it.

Case 6. Miss A. K., age 24. January 23rd, 1902. She is a seamstress but has had to give up sewing because of eyes aching and blurring. She has a manifest esophoria of 7° and left hyperphoria of 1°, with a refractive error in each eye of + .75 ax. 90. She was given this correction with 3/4° prism base up over right eye and 4° prism base out over left eye. These gave partial relief for a short time. In two months her esophoria had reached 13° with left hyperphoria still 1°. I then tenotomized right internal rectus, leaving no esophoria. The next day she had esophoria of 11°, with left hyperphoria of 2°, and three days later esophoria 9°, and left hyperphoria of 1½°. I now tenotomized the left internus and cut more of the capsule below than above, leaving orthophoria. Three days later orthophoria still remained. Five months later she had esophoria of 4°, and was having no trouble with eyes.

Case 7. Mrs. W. P. M., age 24. March 4th, 1899. She had a miscarriage at the 6th month in February. Complains of vertigo, vomiting, and headache. She can scarcely retain anything on her stomach. She carries her head downward and to left to avoid diplopia, and most of the time keeps one eye closed. She has an error of refraction of + .75 in O. D., and + 1.25 in O. S. with esotropia of 22°. She was given wall to wall exercises every morning for ten minutes, and the Faradic current to eyes for five minutes. Internally 1/30 gr. strychnia, t. i. d. and her hyperopic correction given. In ten days she could maintain single vision with a red glass over one eye, and had instead of esotropia, an esophoria of 12°. Improvement was rapid from this time on, and on the 20th day after beginning the exercises she had only 3° esophoria, and was free from her former symptoms, and had gained 20 pounds in weight. Her improvement was permanent. She has ceased wearing her glasses and has now no trouble whatever.

CONCLUSIONS.

Out of the last 1,000 refraction cases examined, only 49 have been cases of heterophoria. I do not make a diagnosis of heterophoria on the history card of the patient unless at least 5° lateral imbalance or 1° or more of vertical imbalance exists, therefore in the 1,000 cases mentioned only 49 showed an error of muscle balance of that amount. Out of this number only six have been operated upon, and strange to say with one exception they have all been seen within the last year. My experience has been that women are more frequent sufferers from heterophoria than men. Of the 49 cases mentioned 33 were women, and of the six operated upon all were women. Of these six all were unmarried. Three were school girls and three were earning a living. All of them were actively using their eyes for near work. They were all in apparent good health, Cases 2, 3, 4 and 6 were robust, and with the exception of case 1 they all had low errors of refraction. Personally I have been disappointed with all forms of exercise of the eye-muscles for the correction of heterophoria, except in cases clearly dependent upon constitutional conditions. Case 7 is a good illustration. I have not abandoned exercise by any means, for the reason that it is impossible to always tell how much of a constitutional factor enters into the causation. The use of prisms up to five degrees for lateral correction and three degrees for vertical correction are many times worn for years with comfort. I am, however, inclined to think that in the majority of cases to prescribe a prism of a given strength means that later one of higher degree will be required and so on until operation is demanded. This applies more to lateral correction than vertical. The measurement of adduction and abduction and circumduction is not in my opinion inclined to throw much additional light on a case. As a matter of fact I now rarely measure the duction power, because I have found it so variable and if relied upon, misleading. As a matter of fact heterophoria has never formed a conspicuous part of my findings, and has certainly given me little concern. I always prefer to correct an existing error of refraction, and give lenses without decentering a fair trial first before altering their centers. The comfort of the patient is what I am after. If I get it by the simple correction of the refractive error, well and good, if not, it is time enough for decentering or prisms. When it comes to tenotomy several things have to be considered. Tenotomy should be resorted to last. Lenses and prisms have failed of course. The case should have been under observation long enough and seen sufficiently often to learn positively that a certain fixed muscular error exists. Personally I should hesitate to perform a tenotomy if the use of prisms did not afford some relief, for I should be inclined to think the cause of the discomfort was not due to the eye muscles. I have seen lateral errors of twelve degrees and more where the patient had no symptoms arising from it. When tenotomy has finally been determined upon it is not my practice to use any "graduating" upon the tendon. I feel certain that I have not seen even as much as two degrees of effect until all the tendon has been severed from its attachment, and to get as much as seven degrees of effect rather free cutting of the capsule on both sides of the tendon must be indulged in, and then as the muscle heals a good part of it is lost. This statement does not apply to the vertical muscles. One must be more guarded here in tenotomizing not to do too much capsule cutting. However, as a choice of two evils I prefer a little over effect to under effect for the reason that since we usually attack the superior rectus of the hyperphoric eye, thereby letting this eye downward, if we overdo it the fellow eye can be attacked in a similar manner thereby lowering the horizontal plane of the eyes which is usually desirable. Whereas, if when tenotomizing the superior rectus, an under effect is obtained, it becomes necessary later to attack the same muscle again or the inferior rectus of the fellow eye, a procedure which is usually undesirable. Advancement is too uncertain a quantity for the correction of heterophoria except in high degrees. Simple stretching of the tendon after the method of Pana without tenotomy is a procedure of value as I have demonstrated in my clinical work, but it requires a general anesthetic, and as the latter introduces an element of danger to life it is not looked upon favorably by the patient.

A CASE OF RUPTURE OF THE CHOROID WITH GLAUCOMATOUS SYMPTOMS.

BY HOWARD F. HANSELL, M. D.,
PHILADELPHIA.

The history of the case is, in brief, as follows: J. McG., 22, was struck in the left eye by a large iron bolt. The lids were badly cut and vision was immediately lost and remained so for 2 days. Five days later vision was so much improved that he could read the head lines of a newspaper in the morning hours, but lost this power in the afternoon, regaining it again after a night's sleep. Severe pain in the eye and its neighborhood developed a week later, demanding the use of morphia. It was accompanied by intense swelling of the lids and of the conjunctiva. He was admitted to the Polyclinic Hospital August 19, 1902, two weeks after the accident.

Patient stated that the right, the uninjured eye, had been practically useless since birth. Vision in that eye = counting fingers at 3′. The eye was hyperopic and amblyopic without ophthalmoscopic changes. In the left, the wounded eye, vision = counting fingers at 2′, the ocular and palpebral conjunctiva was congested, cornea hazy and slightly anesthetic, anterior chamber deep in the lower and outer quadrants, pupil drawn to the nasal side and irregularly dilated without adhesions, lens clear, vitreous almost impenetrable to light and probably partly filled with blood; Tension + 3. The inferior portion of the iris trembled slightly on movements of the ball and was on a level posterior to that of the remainder of the membrane. Above, it was slightly pushed forward, narrow and immovable. The urinary analysis showed sp. gr. 1024, a faint trace of albumin and a precipitate of phosphates and no sugar.

The diagnosis of traumatic glaucoma, dislocated lens and vitreous

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[*] Read before the Section on Ophthalmology, College of Physicians, Philadelphia, October 21, 1902.

hemorrhage was made and treatment by eserin locally and by pilocarpin sweats ordered. Vision improved, pain subsided and tension relaxed to + 1 in a few days. It was noticed, however, that the ciliary and scleral injection, masked at the time of admission by the conjunctivitis, persisted and the eye presented the appearance of uveitis rather than glaucoma. Notwithstanding the tension had not been reduced to normal by eserin, atropia was instilled and its effects carefully watched. The congestion declined, the patient was more comfortable and vision rapidly improved. Through the dilated pupil and the now transparent vitreous the condition of the fundus could be easily studied. Three distinct and separate ruptures of the choroid in its nasal and upper section, concentric or nearly so with the nerve head were seen—as pictured in the water color sketch by Dr. Mary Buchanan. Below the nerve and in a vertical line with it as a quadrangular patch of disturbed retinal pigment and here and there throughout the fundus a few fine pigment spots. The nerve head was not cupped. The choroidal tears are clean cut, wider in their centers and pointed at their extremities and concentric with one another. They are of different lengths, the longest extending almost into the foveal region. Vision with a weak concave glass is 6/12.

Remarks.—The features that are of particular interest in the case are:

1. The combination of multiple choroidal rupture, partially dislocated lens and glaucoma.

2. The recovery under atropin in spite of the extreme hardness of the ball. I believe with Priestly Smith that atropin is contraindicated in traumatic glaucoma only when by its mechanical action in dilating the pupil and throwing the iris into folds the filtration angle is obstructed and the excretion of fluid prevented and that it is indicated in traumatic glaucoma in congestion or inflammation of the uveal coat when the pupil is contracted and undilatable.

3. The presence of the symptom mentioned by Aub of metamorphopsia. During the early part of each day the patient notices a waving or trembling of lines particularly when horizontally placed. The line changes in its form with every movement of the lens.

4. The presence of myopia. Although this does not exceed one diopter I believe the eye was, before the injury, hyperopic several diopters. My opinion is based on the presence of hyperopia and extreme amblyopia of the right eye.

ON THE USE OF LARGE DOSES OF SALICYLATE OF SODIUM AND AN ATTEMPT TO EXPLAIN ITS ACTION.

BY H. GIFFORD, M. D.,

OMAHA.

Although the use of salicylate of sodium for rheumatic and some other inflammations of the eye is common, I am convinced, from talking with friends, that there are classes of cases in which its advantages are not sufficiently appreciated. I also think that the doses usually given are too small to accomplish the best results.

First, with regard to the method of administration, I find that the average patient will stand during the waking hours, that is, from 7 A. M. to 10 P. M., one grain of salicylate to each pound of his weight without serious inconvenience, that is to say, a patient weighing 150 pounds would stand ten 15-grain doses given an hour and a half apart, while many patients stand much larger doses without complaint. The highest dose I have ever given was in a case of sympathetic ophthalmia where a boy, weighing 120 pounds, took 180 grains during fifteen hours. But an acquaintance of mine tells me that he has frequently given 100 grains at a single dose. In giving these large doses the main difficulties are a tendency to produce collapse and gastric disturbance. Years ago I had two cases of quite marked collapse from doses considerably smaller than a grain to the pound, but for a number of years have not been troubled in this way. I attribute this, to some extent, to the practice of making the patient go to bed after taking the third or fourth dose, or in the case of children, I keep them in bed all day. I also generally give the salicylate in brandy, dissolving an ounce in four ounces, which gives approximately 15 grains to the teaspoonful. Such large doses are not always required and it is well to begin with less, unless the case is urgent, but in many cases the best results cannot be obtained with less; for instance, I have had a number of patients who would make considerable improvement on ten doses a day, but who would then come to a standstill and make no further progress until 11 or 12 doses were given. When giving as much as this, I always allow the patient to go without the drug for a day or two every third or fourth day. Another desirable precaution is to warn the patient to keep the head wiped dry if there is much perspiration, as otherwise a severe cold may be taken. Each dose of the brandy and salicylate mixture is given in about 1/8 of a glass of water and about the same amount of water drunk immediately afterward to get rid of the taste. A good plan in some cases is to have the patient eat a small cracker after the medicine. Where, in spite of these precautions, the stomach rebels, a change to giving the salicylate in capsules, following these with the brandy and water, is sometimes advantageous, as the disgust which some patients express for the drug is due, to a large extent, to its taste. I am aware that temporary blindness and deafness have been reported from smaller doses, but such cases must be so extremely exceptional that they need have no more weight than the blindness which occasionally results from a moderate dose of quinine.*

With a view to avoiding the unpleasant effects of the salicylate I have tried *aspirin*, about which so much has been written of late, but I cannot say that its use has any decided advantage except to the manufacturer. In the few cases in which I have tried it, it has seemed to me that if enough were given to produce the good results obtained with salicylate, the unpleasant symptoms were about the same as when the latter was used.

Now as to the diseases in which it is to be recommended, I believe it is the most important of drugs in all non-specific inflammations of the iris, ciliary body, sclera and episcleral tissue whether or not there is any question of rheumatism. In the acute retrobulbar affections of the optic nerve it also seems to be of great value; also in acute glaucoma as recommended by Sutphen. In the cases classed as optic neuritis, there are so many conditions which are not really inflammation, but are due to stasis or thrombosis, that I have less faith in the salicylate than in large doses of the iodides; and the same is my impression with regard to the forms of chorio-retinitis, localized at the posterior pole of the eye. Of the affections in which I think the salicylate deserves a wider use, I would lay especial stress on sympathetic ophthalmia, postoperative or traumatic inflammations of the iris and ciliary body, interstitial keratitis and herpes of the cornea.

Of its use in sympathetic ophthalmia, I have already written, (Trans-Am. Med. Ass'n, 1899), and testimony as to its value here has also been given by Heuse of Elberfeld (Centralblatt f. Augenheilk., Apr., 1901) and Bane of Denver (Ophthal. Record, Sept., 1900). Since then, the work of Schirmer (Arch. f. Ophthal. LIII, 1) on the value of inunctions of mercury in this and other traumatic inflammations has appeared, but from my own experience I should still place the salicylate first. Emphasis should, however, be laid on the necessity of keeping up its use on one or two days in the week for a long time after the last sign of active inflammation has disappeared. It may be asked why not, in so serious a disease, give both salicylate and inunctions: I think this may be admissible in some cases and I frequently use them alternately, but in one case of iritis, where I used both at the same time, the patient got such a distressing diarrhoea that I have since then been slow to try the combination.

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* I have noticed slight delirium in one or two out of many hundred cases, but a medical friend tells me of a patient in his practice who became maniacal on two occasions where salicylate was given for rheumatism and similar cases have been reported elsewhere.

In interstitial keratitis, where the patient shows no marked signs of hereditary syphilis, the salicylate in large doses acts almost like a specific, and this is especially true of the one-sided form with sharp criss-cross lines of opacity which one occasionally sees in adults. With patients who are plainly the victims of hereditary syphilis, the action of the salicylate upon the keratitis is less certain, but it is always of value and in many such it does more good than both the iodides and mercury. With the interstitial keratitis of acquired syphilis, I have had no experience.

Perhaps no class of cases demonstrates more clearly the lack of a necessary connection between the action of the salicylate and the rheumatic diathesis than the cases if iritis which not infrequently, in my practice at least, occur after cataract extraction. These with rare exceptions respond promptly to the generous use of the drug.

In herpes of the cornea, the patient sometimes suffers atrocious pain, which hot applications and atropine fail to relieve. Such cases formerly gave me much trouble, but since I have treated them with salicylate, especially in connection with local applications of iodine to the cornea, as recommended particularly by Friedenwald, I have had much better results.

Now as to the manner in which the salicylate produces such remarkable effects; I at first thought that it must act as a germicide, and acting on this idea, attempted to increase the effects by using it subconjunctivally; but on using a 1-10 solution I merely caused a local necrosis both in man and rabbits and gave up the attempt. Since then as a result of numerous experiments Fromaget & Laffay (Annales d'Oculistique, July, '97) have decided that if the drug is to be tried subconjunctivally, the solution should not be stronger than 1-20. Schoeler, to be sure, has found (Abst. in Jahresbericht f. Ophthal. XX, p. 329) that rabbits stand injections of 1:2 (how much?) into the vitreous, and reports one case of metastatic iridocyclitis in which, used in this way, it seemed to do good in man, but he thinks that it acts, not as a germicide, but by altering the tissues so as to produce conditions less favorable to germ growth.*

In deciding on the possibility of the salicylate exerting a germicidal or germ-hindering effect when taken internally, it is evident that account must be taken not merely of the amount ingested, but of the rapidity with which it is excreted. To quote from a report which I made in 1900 to the Nebraska State Medical Society; the problem to be solved may be stated in this way: Granted that to produce a marked antiphlogistic action a man of 150 pounds weight must take 150 grains of salicylate in fifteen hours; is there present in his system at any time during this period, or after the last dose has been taken, enough salicylate to produce a distinct influence on the growth of pathogenic germs?

The elimination of salicylate by the kidneys proceeds with great rapidity (I have found it in the urine in less than five minutes after taking 15 grains dissolved in brandy) and to get at the quantity existing in the body at any one time, I have adopted the following plan: A patient who is about to begin taking salicylate empties the bladder immediately before taking the first dose, then all the urine which is passed between this time and one-half hour after the last of the ten 15-grain doses has been taken, is saved and the amount of salicylate which it contains is estimated, and as about 95 per cent of the salicylate which leaves the body does so through the urine, it is evident that the amount thus obtained plus 5 per cent, is approximately the difference between the 150 grains taken and the amount remaining in the body. The quantitative analyses have been kindly made for me by Professor Stokes, of the Omaha Medical College, and the results obtained in three different patients indicate that the amount remaining in the first patient was approximately 12 grains; in the second 22 grains; in the third, 19 grains, or an average of 17 grains. In determining how strong a concentration of the salt is thus made available for checking the growth of any supposed germs in the body, it is evidently incorrect to assume that the salicylate is all contained in the blood; from the capillaries it must diffuse out through all the soft tissues. All things considered, it is perhaps safest to assume that the salicylate is distributed through the whole body, minus the skeleton, which in a man of 150 pounds weight would leave 17 grains in 130 pounds, or a strength of the salicylate mixture of 1:52529.

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* Freire (Centralblatt f. Bacteriologie (xxiv., p. 740) who regards the salicylate as the most important remedy for yellow fever, gives it subcutaneously in the strength of 1 : 4 and at times per rectum.

The question now arises: Is a salicylate solution of this strength capable, in the test tube, of markedly checking the growth of the ordinary pathogenic germs? I say "checking the growth," because it is not necessary in order that a disease may be helped by a drug, that the germs which cause it should be actually killed by it within the body. A slight check to their growth may be sufficient to allow the body-cells to get the upper hand and do the rest. Unfortunately for the theory with which I started out, it appears from the experiments thus far made, that a strength of from 1 to 1000 to 1 to 500 is necessary to check the growth of the ordinary white and yellow pus cocci very decidedly. The latter grew quite profusely on agar containing the salicylate in the strength of 1 to 1000, but upon that containing 1 to 500 they did not grow at all; and the anthrax bacillus, while it grew in agar containing 1 to 1000, did so very sparingly.

It is clear, then, that so far as these experiments go, the evidence is distinctly opposed to the conclusion that the salicylate, even in doses of 150 grains in 15 hours has much direct effect on the growth of germs within the body. If this is so, then how is its antiphlogistic effect produced? Without attempting to consider all the theories which have been suggested, it seems to me that that of Oltramare is the most plausible, according to which a local depletion is produced by the general capillary dilatation which the salicylate causes. To state this more definitely, let us assume that in a small inflamed area the arterioles are already dilated to the maximum by the bacterial toxins; if now, with no increase in the strength or rapidity of the heart-beat, the arterioles all through the rest of the body are dilated through the action of the salicylate, it is evident that less blood would pass through the inflamed area in a given time than before the drug was administered. But it may be asked: Is it certain that reducing the blood supply to an inflamed area tends to check bacterial growth in it? I will admit that on this point there is room for controversy, but a discussion of this phase of the subject would require a separate paper to do it justice. I will merely refer to the remarkably favorable influence which an optico-ciliary neurectomy (in which a large part of the blood supply is cut off from the eye) exerts upon traumatic inflammations, and to the action of cardiac depressants in checking colds.

It has been suggested that the diaphoresis produced by the salicylate is the important factor, but while this may help, it is evident that this can play but a secondary part, because other drugs which produce free sweating, do not have the same effect on the inflammation and in many patients who respond readily to the drug, the diaphoresis is insignificant.

ON THE NECESSITY FOR THE USE OF COLOR NAMES IN A TEST FOR COLOR BLINDNESS.

BY F. W. EDRIDGE-GREEN, M. D., F. R. C. S.

The first requirement of a test for color blindness is that color names be used and that the person to be examined should employ and understand the use of the color names, red, yellow, green, and blue. I can say in the most emphatic manner that no test which ignores color names can be efficient. I predicted that if color names were ignored in the Board of Trade tests, normal sighted persons would be rejected and this prediction was fulfilled. Over 38 per cent one year and more than 42 per cent another year were found to be normal sighted and to have been rejected wrongly. An engine driver or sailor has to name a colored light when he sees it not to match it. He has to say to himself, "This is a red light, therefore there is danger," and this is practically the same as if he had made the observation out loud. Even the method of matching colors should, in order to be efficient, be one of mentally naming them. In my classification test I use colored materials of different kinds as similarity, other than that defined by the word "color," is the great source of error in a test of this kind. The color blind may be divided into two distinct classes which are independent of each other but which may be associated. The first class includes those who are not able to see certain rays of the spectrum; their spectrum is shortened at one or both ends. If a man have shortening of the red end of the spectrum, he will not be able to see a red light at a distance though he might be able to pick out all the green wools in the classification test. A man of this kind when shown the red light of my lantern test declares that there is no light visible, at once demonstrating his incapacity. The second class of the color blind make mistakes not because they can not perceive a certain color, but because they are not able to recognize the difference between the colors which is evident to normal sighted persons. Both these classes are represented by analogous conditions in the perception of sounds. The first class of the color blind is represented by those who are unable to hear very high or very low notes, that is to say these notes are non-existent to them. The second class is represented by those who possess what is commonly called a defective musical ear. Normal sighted persons see six definite colors (points of difference) in the spectrum. The second class of the color blind see five, four, three, two, or one color, according to the degree of the defect; and they confuse the colors of the normal sighted which are included in one of their own. If the normal sighted be designated hexachromic, those who see five colors may be called pentachromic, those who see four tetrachromic, those who see three trichromic, those who see two dichromic, and the totally color blind monochromic. The degree of the defect will be recognized by the names given to different colors. The pentachromic will miscall orange. The tetrachromic will in addition make mistakes with regard to blue. It is not necessary to reject either of these two varieties, because I have never succeeded in making them confuse the colors, red, yellow, green and violet. The trichromic are always in difficulty over yellow and miscall it red, green, or red-green and for practical purposes must be excluded as color blind. The dichromic confuse red, orange, yellow, and yellow-green on the one hand, and blue-green, blue and violet on the other.

Copper Citrate in Trachoma.—Encouraged by the excellent results of using silver citrate instead of silver nitrate, von Arlt (*Klin. therap. Woch.,* IX, No. 15) has tried to substitute the citrate for the sulphate of copper in the treatment of trachoma. Copper citrate is a green, very light powder, containing about 35 per cent of copper. It is employed in the form of an ointment (5 to 10 per cent strength) which may be put up in tubes and expressed drop by drop into the eye. The lids are then closed and massaged for half a minute. The pain experienced is very slight. The procedure is repeated two or three times. The eyes may be washed an hour after application. This treatment can be carried out by the patients themselves. The effect on pannus of trachomatous origin is startling. In 7 to 12 days the opacities disappear. The conjunctival alterations also show a marked improvement after one or two weeks' treatment, the secretion becoming less profuse and the granules or follicles diminishing in size. No scar formation takes place. In severe cases this treatment may be reinforced by applications of silver citrate.—*Phila. Med. Journ.*

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REVIEW.

Subconjunctival Injections of Hetol. —Dr. A. Lezenius, of St. Petersburg, in *Kl. Monatsbl. f. Augenheilk.,* October, 1902. The problem as to the advisability of undertaking in any given case a somewhat unusual method of treatment such as, for example, would involve the introduction beneath the conjunctiva of the eye of some drug in a soluble or easily diffusible form, is an important one and its correct solution depends largely upon the previous experience and judgment of the practitioner. About a year ago the *Klinische Monatsblatter für Augenheilkunde* contained an article by Dr. Pflüger on subconjunctival injections of Hetol and the October number of the same journal for the present year contains an article on the same subject by Dr. Lezenius, of St. Petersburg, wherein he relates his experience with this therapeutic method and at the same time attempts to verify statements previously made.

Cinnamic acid (CH CO_2 H) (Hetol) is present in considerable amount in Storax, Balsam of Tolu and Peru, as well as in some varieties of benzoin. Balsam of Peru owes its antiseptic properties to it, and, on this account, has been widely used in superficial ulcerative processes, and a knowledge of these antiseptic properties determined Landerer to make use of Balsam of Peru to produce an aseptic inflammation in the neighborhood of a tuberculous focus. Soon, however, Landerer discovered that the effective agent was Cinnamic acid, and therefore made use of an emulsion of this acid, although in the treatment of lupus he used an alcoholic solution of the same with Cocain. This is naturally not the place to report results of this method of treatment, still it may be merely stated, after sixteen years of carefully testing this method of treating tuberculosis by Cinnamic acid injections, he considers it to be, in all respects, the proper one and is extremely well satisfied with his results. Recently he has been in the habit of using for the injection either a 1 per cent or a 5 per cent solution of Natr. Cinnamylic (Hetol) in water, or 0.7 per cent Koch's salt solution. The solution must be absolutely clear, and of neutral or weakly alkaline reaction; acid solutions must be rejected. The synthetical, chemically pure "Hetol" must only be used. It is well worth the while to test a new weapon that may be directed against tuberculosis, in the treatment of which, to-day there exists no absolutely specific remedy. This matter bears a close relation to ophthalmology, with the difference, however, that it does not confine itself to tubercular eye processes alone, as Hetol may be used in inflammatory processes arising from a variety of causes. Through an interest aroused by Prof. Pflüger's communication regarding subconjunctival injection of Hetol (Klin. Monatsbl. f. Augenhk. 39. 2. 786) Dr. Lezenius determined to verify these results, and carry on as well, independent experiments and observations. It is to be regretted that no opportunity was given to treat a tubercular uveitis with Hetol, therefore, in this respect, the experimentation is defective. A synthetic, chemically pure Hetol was exclusively used under antiseptic precautions, each time 0. 5 g. of a 1 per cent solution was injected under the conjunctiva of the affected eye; the injection fluid was sterilized by boiling. The patients bore the injection so well that at first they were repeated every other day, and finally every day. After the injection, a dressing of sterile cotton was allowed to remain upon the eye for a couple of hours, or until absorption had taken place. The injections are somewhat painful even to the cocainized eye, but never so much so as when sublimate or Koch's solutions are used. Whenever it seemed proper, there was combined, as by Pflüger, constitutional and local remedies, and injections were continued as long as improvement was noted; in fact in only two cases did unpleasant symptoms result. The patients themselves testify to the relief from pain they experienced from the injections. When used in inflammation of the cornea, it was noticed that in Herpes, after the first or second day symptoms of irritation became greatly diminished or actually disappeared; the ulcerative process either ceased to advance or retrograded, and generally healing occurred in from six to ten days. In none of this class of cases was any other drug used which could in any way cast doubts upon the efficacy of the Hetol. Likewise by its action in increasing the lymph circulation it promotes metabolism. In recent ulcers of the cornea the patient is highly appreciative of the soothing effect of Hetol, as there is a marked diminution in pain and irritation even after the second injection. It is impossible to state positively whether a recent ulcer heals any more quickly under the Hetol treatment than it would have done if treated by the old method provided a strict asepsis had been maintained from the beginning. At all events an eye seems to suffer no damage from the Hetol. An injection of 0.50 g. of a 1 per cent solution of Hetol given to quiet the pain of an hypopion ulcer, in a short time, was in one instance followed by severe irritation and moderate chemosis. This ulcer had an irregular, serrated margin and involved a large part of a pus infiltrated cornea. Vision, nil; Saemisch operation; Eserine and bandage. A large plug of exudate came from the incision and on the day following panophthalmitis was undeniable. Half an hour after the injection there was an onset of severe, continually increasing pain, unrelieved appreciably by hot compresses. According to Landerer's theory this bad effect of Hetol may be ascribed to the setting up of an intense artificial leucocytosis in a condition where leucocytosis already existed, thus favoring the development of a panophthalmitis by promoting suppuration. Remarkable results were obtained in that class of chronic ulcers which remain for so long a time without change as to seem to bid defiance to almost any method of treatment. This same thing was noticed in that type which is characterized by frequent relapses. The improvement here noted was probably due to thorough disinfection and stimulation of the flow of lymph, thereby transforming the chronic stage into an acute process. The healing of perforating and non-perforating wounds of the cornea was attended by less pain and disturbance than is usually observed. As eight cases of parenchymatous keratitis, which were given Hetol, likewise received inunction this series may not be considered absolutely, still a minimum of twenty-one and a maximum of forty days' treatment, in view of the long period such cases are usually under observation, has a relative bearing upon the question. In this latter class of cases the iris was variously affected, and did not react in any great degree to either atropine or hyoscine; mydriasis, however, came on promptly after a Hetol injection. A favorable influence seemed to be exerted upon the period of convalescence, the final result and the uveal complications. An appearance noted by Pflüger but not verified by Lezenius as suggestive of the lymph-producing power of the injection agent may be mentioned: In a case of parenchymatous keratitis, if the cornea is examined by focal light and under magnification very soon after an injection, transparent fissures, now appearing, now disappearing, are observed and by Pflüger are considered as the expression of lymph streams in the cornea. In cases of corneal pannus, atropine, reinforced by Hetol injections, caused rapid mydriasis and relief from pain, but the tissue change did not appear to be materially affected. When the injections were used in diseases of the iris and choroid, it was found that pain located in the iris was greatly relieved and was accompanied by prompt mydriasis, except in purulent iritis followed by panophthalmitis when it became severe. The results obtained by its use in attempting to clear up cloudy media were not at all constant. The injections seemed to be of advantage in iridocyclitis serosa and in choroiditis but did not seem to be so well adapted to iridochoroiditis. Although they seemed to mitigate the severity of the symptoms of simple iritis the course of the disease did not seen to be less protracted. Hetol gives the best results in those inflammatory conditions of the iris and choroid which are not purulent in character. The course of an episcleritis or scleritis is not any shorter than one which has been subjected to the usual constitutional and local remedies, and this is rather surprising as the remedy is supposed to favor lymph production and metabolic change and to promote absorption. The localized tenderness quickly disappeared, as did such corneal complications as infiltration and diffuse opacity. The Hetol solution, when injected, reaches, probably by the way of the conjunctival lymph vessels, the lymph spaces of the cornea, and through these becomes diffused through the anterior chamber. The conjunctival and scleral vascular system probably plays an unimportant role. This may explain why the effect of the drug is diminished the farther the disease is from the site of the injection as the fluid is carried almost directly to the corneal tissue and here can exert its full effect, its intensity all the time diminishing until the choroid is finally reached. A more general use of the Hetol injection method and careful recording by skilled observers of the effects produced, favorable or otherwise, can only determine whether it shall take an enduring place in ophthalmic therapeutics.

Wm. Dudley Hall.

The Medical Critic Publishing Co., of 154 East 72nd street, New York, are about to publish a cloth bound volume, 500 pages, entitled an "Index Medicus," which will be a complete summary of all the original articles published during the past twelve months. This book will be presented free to the profession, and will not contain a single line of advertising anywhere throughout the text; the type of all reading matter will be uniform. There will appear a list of the original articles published in all journals during the past year, with authors' names, and classified according to subjects.

REPORTS OF SOCIETIES.

OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM.

Thursday, October 16, 1902.

W. Adams Frost, F. R. C. S., Vice-President, in the Chair.

Mr. H. C. Baldwin, in a paper communicated by Mr. Nettleship, recorded a case of *Dislocation of the Eyeball through the Palpebral Aperture.* The patient was a woman who struck the left eye against a projecting gas bracket. Within fifteen minutes Mr. Baldwin saw her when the eye was found gouged out and was projecting between the lids. By gentle taxis he was able to reduce it readily. The vision completely recovered and with the exception of a slightly crinkled appearance at the outer side no visible scar remained.

Mr. Beaumont said he had seen a case of dislocated eyeball in a child after a difficult delivery; here also the eye was restored to its normal position after 24 hours.

Mr. Nettleship recorded a case of *Birth-palsy of the Sixth and Seventh Nerves* on the same side. The mother of the patient was 30 years of age and she had a slightly contracted pelvis. It was a brow presentation and forceps were used and these left a scar on the head which was situated on the temporal bone near the ear. There was another scar on the other side but higher up. The child was born at full term and showed no sign of asphyxia, there was no swelling of the eyelids. Within a few hours of birth it was noticed that the child squinted inwards with the right eye, the lid remained open and the facial muscles on the same side were paralyzed.

The right eye could not be turned outward at all and the pupil did not react briskly. On the fifth day the condition remained unaltered and no notice was taken of a noise made near the child's head. A slight hemorrhage was then noticed in the right fundus. Just behind the right ear was a slightly elevated ridge and groove where the forceps had pressed. The condition rapidly improved and when nine months old nothing abnormal was noticed except slight weakness of the orbicularis. He can now hear a watch equally well on both sides. Mr. Nettleship thought that the lesion was intracranial and that the two nerves were affected in their course most likely by hemorrhage and from the fact that the two nerves recovered at the same time he concluded that the nerve trunks and not the nuclei were the parts which were pressed upon by the blood clot. He did not know of any other recorded case in which these two nerves were involved in a similar lesion.

Mr. Fisher thought that an intradural hemorrhage would have to be very large to affect the nerves in the way described and he thought a more likely explanation was that the facial nerve was nipped by the forceps as it emerged from the stylomastoid foramen and that the sixth nerve was affected by a hemorrhage from the inferior petrosal sinus.

Mr. Nettleship described a case of perfect recovery of vision in a case of Leber's disease. The patient was a tutor 28 years of age whose sight failed six months before. The vision was Jo and J16 in each eye. There was a central scotoma for green but red could be seen much better. The choroid was dark in appearance and the knee jerks were brisk. The patient's brother came under Mr. Doyne's care recently for a similar condition when it was found that the original patient had quite recovered his sight and had since become ordained and had subsequently become a school master.

He mentioned another case in which two brothers were affected and here also one is said to have recovered his sight.

Mr. Adams Frost mentioned the case of a man aged 23 who suffered from the disease and he informed him that his brother had had the disease but had partially recovered.

Messrs. Ormond, Johnson, Taylor and Lawford all mentioned cases in which improvement had taken place but in none had recovery taken place to so great an extent as in Mr. Nettleship's case.

Dr. Lediard communicated a case of *Dermoid Cyst of the Orbit which had dislocated the eyeball and occupied the antrum.* The patient, a man 49 years of age, was admitted into the Cumberland Infirmary in July, 1902. The eyeball had been proptosed for 30 years. The eyeball had been protruding from the orbit and had been blind for 5 years. A soft, doughy tumor was felt above the eyeball and near the outer angle of the orbit, and the eyeball rested on the outer aspect of the malar bone. On removing the globe a dermoid cyst was discovered which filled the orbit and antrum. The cyst wall could not be removed entirely but the floor of the antrum was opened so as to facilitate drainage. Dr. Lediard noted the absence of any similar case in the Transactions but drew attention to a case published by

Mr. Spencer Watson in the report of the Proceedings of the Fourth Ophthalmological Congress in 1873.

The following card specimens were shown:

1. Mr. A. Quarry Silcock: *Detachment of the Retina.*

2. Mr. C. H. Walker: *Embolism of the anterior temporal branch of the Retinal Artery.*

C. Devereux Marshall.

OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM.

Friday, Nov. 14, 1902.

A. Stanford Morton, F. R. C. S., vice-president, in the chair.

Avulsion of Eyeball by Midwifery Forceps. Mr. Simeon Snell (Sheffield) related this case. The patient, the day following its birth, was admitted into the Sheffield Royal Infirmary in June last with the left eyeball lying on the cheek being connected to the orbital tissues by little more than bands of conjunctiva. There was a mark of the forceps above the left eyebrow. The particulars supplied by the medical man in attendance showed that the mother was a small woman with a very contracted pelvis. The pelvis was so small that it was thought it would be necessary to use the perforator but ultimately the child was extracted by the aid of forceps, and the eyeball was found in the condition stated. The globe was removed by severing the slight bands that held it to the orbital tissues. The optic nerve was found to have been torn through leaving fully an inch attached to the eyeball.

Paralysis of the Upward Movements of the Eyeballs.—Mr. Simeon Snell (Sheffield) related this case occurring in a man, aged 50. After being at work all day he returned home at 5.0 in the afternoon. He then had his tea and fell asleep and remembered nothing until 4.0 the next morning. It appears that his wife called him three times during the night but he recollected nothing of it. When he awoke at 4.0 he felt very giddy and had difficulty in standing. He again went to sleep and remained so until 8.0. He awoke with severe pain in the forehead and diplopia. When seen by Mr. Snell six days after (July 25th) the eye movements were normal in all directions except upwards but, either together or separately he was unable to raise them upwards. On attempting to look up the upper eyelids made the normal elevation but the eyeballs did not move and a rim of sclerotic was left visible above the cornea. The attempt also brought about contraction of the occipito-frontalis muscle and wrinkling of the forehead. V. in each eye = 6/6. At 8 feet distance from an electric lamp and on the same level he saw two lamps one being about an inch above the other. There was absence of other nerve conditions. The diplopia disappeared two days later and at the end of August he was able to move the eyes upwards either singly or together perfectly.

Numerous Instances of Nyctalopia (Retinitis Pigmentosa) Occurring in five generations. Mr. Simeon Snell (Sheffield) mentioned a man, aged 46, since childhood he found it difficult to go about in the dark. Through gradually failing, during the daytime for the last six years, his sight had become more rapidly worse and for 2½ years he has been altogether unable to follow his occupation. He could not now find his way about and has to be led. V. = R. 2/60, L. 1/60. The ophthalmoscope disclosed a typical picture of retinitis pigmentosa. The peculiar interest centered in the fact that he was a member of a family in which large numbers were similarly afflicted with night blindness. The first who was known to be afflicted was his great-grandfather. He left an only daughter who was afflicted and from her have descended numerous instances of nyctalopia. Beginning with the great-grandfather there have been a total of 69 individuals, and of this number there was good evidence that 28 were afflicted with nyctalopia. The patient's father had 11 children, 5 were afflicted and 6 were normal sighted; the patient himself was the father of 11 children, 7 being afflicted, viz., 5 boys and 2 girls and 4 were normal sighted. There was no evidence of consanguinity in the family. Nyctalopia descended in all instances without a break, no generation was skipped over and viz., 5 boys and 2 girls and 4 were normal sighted. There was no instance of a normal sighted son or daughter by the grandmother having transmitted the malady to their children or grandchildren. Fifteen of the afflicted ones were females, 10 males, and of 3 the sex was not ascertained. Night-blindness showed itself in early childhood. At about the age of 40 or rather more, in some cases younger, the affected ones have become practically blind.

The following card specimens were shown:

Mr. Jessop.—*A Case of Sympathetic Ophthalmitis with Cysts of Iris.*

Mr. Roll.—*A Case of Congenital Ophthalmoplegia.*

Mr. N. B. Harman.—*Two Cases of Fissura Facialis.*
Mr. MacCallan.—*Case of Lymphangiectasis of the Conjunctiva.*
Mr. Grimsdale.—*Paralysis of Both External Recti.*
Mr. Arnold Lawson.—*Paralysis of the Sympathetic.*

COLORADO OPHTHALMOLOGICAL SOCIETY.

Meeting of October 18th, 1902. Dr. E. R. Neeper, of Colorado Springs, in the chair.

Dr. Wm. C. Bane, of Denver. Case 1. Woman, age 56, Mrs. R. J., seen first last June. O. D. V. 6/60, O. S. V. 6/30, fields normal. Gave history of failing vision for six years, near vision very poor. Occasional pain in back part of eyes. Ophthalmoscopic appearances, granular appearance of choroid, temporal half of disc atrophic, and yellow dots about macular region. He is inclined to think the changes are senile. She has made some slight improvement in vision during past month.

Case 2. Dr. Bane saw this woman several months ago, when he examined her on account of asthenopic symptoms, and found at that time that the vision of O. D. was 6/60, and O. S. 4/60. Vision was raised to 6/6 and 6/9 with minus spherocylinders. No fundus changes were noted. She came in twelve days ago complaining of failing vision with right eye. When she looked at a lighted lamp at night she could see a halo about the light but was unable to see the light itself. She has eccentric vision only. He found the peripheral fields normal, with a central scotoma of about 10°. The ophthalmoscopic appearances were a pale striated macular region, numerous fine brown macular deposits, and a long dark line running from disc downward and inwards. Examination of urine showed a small quantity of albumen and granular casts.

Case 3. Woman, age 50, who has been under his care for the past month for a *serpiginous ulcer of the cornea.* All methods of cauterizing the ulcer were inferior to the actual cautery. The cornea finally perforated, and at present is closed with entangled iris, and the activity of the process arrested.

Discussion.—Dr. Edward Jackson, of Denver, thought that Case 1 might be classed as a case of gouty retinitis. He has a case now under observation which had swelling of disc that subsequently went on to partial atrophy as in this case of Dr. Bane's. It has not progressed during the past year, and vision is improving. He thought Case 2 probably a case of retrobulbar neuritis, and that she would in all probability get better. He thought in Case 3 the actual cautery should be applied again to the bulging iris in the corneal perforation.

Dr. E. R. Neeper, of Colorado Springs, asked if the improvement in Case 1 would not be against "senile change." He asked wherein the platinum probe heated over a flame was superior to the electro-cautery?

Dr. Geo. F. Libby, of Colorado Springs, did not think Case 1 due to senility.

Dr. Melville Black, of Denver, thought the changes in Case 2 were due to the kidney lesion and that the condition would get worse, and that in a short time the other eye would become involved. He said in reply to Dr. Neeper, that the rapid cooling of the heated platinum probe when it came in contact with the cornea made it a safer agent to use than the electro-cautery, and that with the latter instrument one did not have the same tactile sensibility because of the cord attachment.

Dr. E. W. Stevens, of Denver, thought the tincture of chloride of iron very useful in such cases of serpiginous ulcer, especially during the convalescence. He has many times been impressed with the marked constitutional decline during the activity of the corneal disease. He has seen patients positively ill and unable to walk. He has found no one agent so useful in assisting in the repair of the inroads made on the general system as iron.

Dr. Black showed a man who, eight days previously, while breaking ore with a sledge hammer, was *injured by a flying particle of rock penetrating his right cornea.* The patient was seen the next day after the injury. The wound in the cornea was not a direct, but an oblique, cut, and in its lips were tough clots of material that were removed with forceps and scissors. The anterior chamber was full of blood. It has been thought that the eye does not contain a foreign body because the eye has had but slight inflammatory symptoms, and the patient has not complained of pain, and has had no photophobia. The blood in the anterior chamber is now being absorbed and the iris is visible to some extent in its upper portion. What can be seen of the anterior chamber does not show that it is encroached upon from behind.

Discussion.—Dr. Jackson thought because of the full anterior chamber that the lens was not injured. He did not think the absence of inflammation precluded the possibility of a foreign body in the eye.

Dr. Neeper would watch the case and act according to indications. He had had a similar case lately, only the eye was injured by a particle of coal. The eye gradually developed chemosis and ophthalmitis, and was removed. It contained a piece of coal.

Dr. Black thought the presence or absence of iritis and cyclitis important features in the diagnosis of foreign bodies in the globe, especially rock, as it causes more irritation through chemical changes, possibly, than does metal.

PAPERS READ UPON "HETEROPHORIA," THE SUBJECT OF THE EVENING.

Dr. E. R. Neeper, of Colorado Springs, said: "That wise provision of nature by which we are enabled to tolerate nature's defects with a comparative degree of comfort is nowhere better illustrated than in the external muscles of the eye. Strict orthophoria, I believe to be quite as rare as emmetropia, yet a great majority of the non-inflammatory cases presented, although they may require refractive assistance, are capable of caring for their respective heterophorias without perceptible inconvenience. The distress one case may suffer from an apparently insignificant heterophoria is quite as amazing as the lack of distress in another of much greater magnitude. This fact should cause careful consideration of the general physical condition, temperament, nervous reflexes and environments of each individual case before giving it the popular classification of hysteria or neurosis when our success has not been all that we had hoped for. Of the different means for the relief of heterophoria, that looking to the upbuilding of the general health and nutrition, together with the proper refractive glasses and prism gymnastics should have our first attention, and very often will give most gratifying results. When these do not meet with our needs, prisms to be worn in spectacles, because of their acceptability to a timorous class of patients, probably are the most useful agency, and certainly are the most abused of any appliance designed for the relief of mankind. Theoretically the ideal method is advancement, tendon shortening and partial or complete tenotomy as the fancy of the operator dictates, but none of them seem successful except in selected cases. I have practiced them only when other means have failed, and then have been only reasonably successful, except when the heterophoria has been isolated or when there has been positive orbital malformation, or where there was an unyielding condition present. I would urgently advise the early correction of heterophoria, believing that too much conservatism or procrastination must lessen the percentage of cases cured and increase the number of cases of strabismus, amblyopia and reflex nervous troubles.

Dr. Edward Jackson read a paper entitled *"Indications Heterophoria Gives for Treatment."* He pointed out that heterophoria is revealed only by special tests; and it is not of itself a sufficient indication for special treatment. It is most frequently an important indication with regard to the use of correcting lenses. The degree of heterophoria cannot be taken as a guide to treatment. Although most cases of low degree require no special attention, even high degrees may have no greater direct significance. He reported a case of 15 centrads of hyperphoria, which disappeared entirely, as other symtoms were relieved by rest, and the wearing of correcting lenses. The constancy or permanence of heterophoria is a more important indication, but not alone conclusive. Only by exclusion, through trial of all other means, can it be decided which cases require surgical treatment. He had used prisms or decentered lenses in about 40 per cent of cases showing over two centrads of heterophoria. They were more generally serviceable and should be made to correct more nearly the full minimum of heterophoria, for elderly people; and were rarely required for children. In 287 cases of heterophoria amounting to two centrads or upward, operation had been advised in only six. The operations preferred were, for exophoria complete tenotomy of the externus, for esophoria advancement of the externus, and for hyperphoria tenotomy with or without displacement laterally of the tendon. Operations may require repetition, but many repetitions are not advisable.

Dr. Melville Black read a paper on *"Heterophoria,"* published in full on page 625.

Discussion.—Dr. Bane has not operated upon a case of heterophoria for several years. He prescribes prisms when necessary and depends largely upon correcting existing errors of refraction.

Dr. Libby has not prescribed prisms more than three times in 1,100 cases examined for refraction. He has never operated. He depends upon correcting existing errors of refraction. He does not think there is much in heterophoria.

Dr. Stevens thought old people wearing presbyopic correction should be tested at near point for any muscle imbalance due to loss of accommodative power, and any deficiency made up for by decentering or prisms. He thinks the study of heterophoria should be from a physiologic and not from an anatomic standpoint. He spoke of three forms of convergence, fusion convergence, accommodative convergence and simple convergence, and he thinks each act has a special center in the brain that presides over it. The conjugate movements, he thinks, have centers separate from the convergence centers. He thinks we have considered the subject too much from an anatomic standpoint.

Dr. Jackson thought the use of prisms in presbyopia very important. He thought there was a good deal in the loss of accommodative convergence, and that many times prisms were needed to assist.

Dr. Black said it was hard to write a paper on heterophoria without giving the impression that the subject was all important to the writer. He desired to emphasize again that this was not the case with him. He and Dr. Jackson seemingly differed as to the proportion of cases found of heterophoria in a thousand refractive cases. Dr. Jackson spoke of cases as heterophoric manifesting one degree and over, while he (Dr. Black) did not, in his report, take cognizance of less than five degrees lateral imbalance and one degree vertical imbalance. He agreed with Dr. Jackson's findings, for almost every case examined manifested at least one degree of lateral imbalance. He thought Dr. Stevens' ideas on convergence very interesting and instructive, but hard to prove. He thought prism exercises for the interni stimulated simple convergence only, and accounted for their not modifying the exophoria.

MELVILLE BLACK, Sec'y.

COLORADO OPHTHALMOLOGICAL SOCIETY.

Meeting of November 15th, in Denver. Chairman for the evening, Dr. Wm. C. Bane.

Dr. E. W. Stevens, of Denver, presented a man 34 years of age who gave a history of *C. C. squint from infancy.* Has worn glasses for many years. Both interni were divided when he was 16 years of age. Ten years later the operation was repeated. At present he has convergence of 50 centrads. Vision with weak astigmatic correction is O. D. 5/5 and O. S. 5/5—. He fixes with either eye, but usually with O. D. Dr. Stevens made a very free dissection of the left internus, extending through the capsule above and including one-half of the tendon of the superior rectus. The latter procedure was done because of an upward turning of that eye. The eye is not yet healed from the operation, but the eyes are almost straight. The patient has been very sensitive over his deformity, and is carrying out bar-reading and stereoscopic exercises very systematically. Dr.

Stevens was anxious to know if binocular single vision could be obtained in this case after he had gone 34 years without it.

Dr. Wm. C. Bane, of Denver. Case 1. Girl 3 years and 8 months old. Seen first a month ago. History of diphtheria eight months ago. Developed C. C. squint during past month. Fixes with O. S. Convergence of from 12 to 20 centrads. Refraction with retinoscopy, O. D. + 3. O. S. +2. These lenses were prescribed three weeks ago. At present the eyes are straight with glasses on, slight convergence with glasses off.

Case 2. J. M., aged 70. *Punctate Keratitis.* Seen first last April. O. D. V. 3/50. O. S. V. 6/60+, improved with minus lenses. Gave history of O. D. being inflamed for past few weeks, and of floating spots before eyes. Condition: Cornea of O. D. dull, T.—(?), linear marginal corneal ulcer, partial anesthesia. The ulcer finally healed. Punctate spots developed in the substantia propria at the center of the cornea, and gradually extended all over the cornea. The cornea is now nebulous, with a few of these very minute punctate spots in the center.

Case 3. M. L. W., age 24. *Obstruction of the central artery of retina.* Seen first a month ago. Five days before, while riding up grade on a wheel, the vision of left eye became obscured as though by a cloud. For two days there remained a little vision in the temporal field; since then the eye has been blind, until just recently he is beginning to have a little light perception. Dr. Bane found at his first examination a typical picture of obstruction of the central retinal artery. He had acute articular rheumatism eight years ago, and every spring since then, until two years ago, he has had a slight return of it. Examination of his heart does not show a lesion. The patient has not given him an opportunity to do much for him, probably because he recommended massage of the eye. He consulted an osteopath, who has been massaging him all over. The fundus at present shows oedematous retina with some blood in retinal vessels. The changes in the macular region are very extensive. The whole region is of a reddish brown color with numerous placques of yellow. A vessel twig can be seen in this area that is glistening white.

Case 4. *Glaucoma Simplex.* J. B., age 48. Seen first in August, 1900. O. D. V. 6/60. O. S. V. 1/60. History of snow blindness a year before, also a severe nasal hemorrhage at that time that made him very weak. He complained of occasional pain in O. D. T. + 1. Marked cupping of both discs. Fields greatly narrowed, especially below. He was given a 1/2 grain solution eserine to be used t. i. d., frequent hot baths advised, and 20 grains sodium salicylate was ordered t. i. d. He had not seen him since until two weeks ago. He now finds vision of each eye 1/60. T. normal, and very great cupping of discs. He desires to know if any operative procedures are warranted.

Case 5. Miss A. N., shown at last meeting, as having central retinitis with scotoma. The condition is getting worse. Examination of urine lately has not shown albumin or casts.

Discussion.—Dr. Edward Jackson, of Denver, has seen two cases of punctate keratitis but has never had an opportunity to watch them as long as Dr. Bane has his case. The results, while slow, have been very good in young subjects. He does not think the prognosis would be so favorable in a man as old as Dr. Bane's case. He thought the case of obstruction to the retinal circulation very interesting. He finds that the prognosis in such cases is becoming more favorable since the deep massage of the globe has come into popular use. He had a case about a year ago in which the obstruction was partial, that made a complete recovery on full doses of nitroglycerine and deep massage. He is inclined to change his opinion from that of last meeting upon the cause of the case of central retinitis. He is now inclined to think it albuminuric. In speaking of Dr. Stevens' case he thought it would be impossible to establish binocular single vision. The bar-reading and stereoscopic exercises were advisable to assist in establishing coordination of the eye movements.

Dr. Geo. F. Libby, of Colorado Springs, asked how long Dr. Bane's case of squint would have to wear glasses before she could safely leave them off without danger of the squint returning. Dr. Jackson replied that she could safely leave them off after she was six years of age.

The general opinion of all present seemed to be that binocular single vision in Dr. Stevens' case could not be established, Dr. Black excepted, who thought it possible that binocular single vision could be established. He based his opinion upon the enthusiasm of the patient, and thought he would do his exercises with great thoroughness. Dr. Black mentioned a boy with C. C. squint, with high hyperopic and astimgatic error, with amblyopia in one eye, whom he fitted with glasses ten years ago, when the boy was six years of age, and who has only within the last year developed parallelism, and with it absolute binocular single vision, as evidenced by an esophoria of 3, and his ability to fuse prisms. He cited this case to show how long it might take to establish binocular single vision. He was inclined to think that Dr. Stevens would have an under effect from his recent operation, and that an advancement would be needed.

The impression prevailed that the case of glaucoma simplex shown by Dr. Bane could not be improved by any form of operation, but that sympathectomy might retard the progression of the blindness.

Dr. Melville Black, of Denver, brought a man before the society with acute trachoma of one eye only. The man was quite positive that before five weeks ago the eye was not diseaesd. The condition was that of inflammatory, succulent granulations with a good admixture of hard, rough granulations. Pannus extending down over the upper half of the cornea. Iritis had evidently existed for some time as the pupil was excluded. Solid atropine was causing a few points to break away.

In the discussion some members of the society were inclined to doubt the statement of the patient that before five weeks ago he had not had any trouble with that eye. They were disposed to think the process an acute exacerbation engrafted upon an old trachoma.

Dr. Edward Jackson reported the case of a man with *central amblyopia.* The man does not use alcohol nor tobacco, but has applied to his hair for six years a patent hair tonic that was found to contain lead in considerable quantities. He thinks the central amblyopia due to chronic lead poisoning.

Dr. E. W. Stevens reported a case of *ptosis in a woman who had taken a patent medicine for a long time that contained arsenic.* The medicine was stopped and the woman recovered from her ptosis.

Dr. E. M. Marbourg, of Pueblo, reported the case of a man seen recently who gave a clear history of having been *injured in right eye 15 years ago by a flying particle of steel.* The foreign body did not cause any reaction and had never been removed from the eye. Examination showed the presence of a particle of steel in the eye, that was lying on the anterior surface of the iris, extending from the free margin of the iris almost to the periphery. The man would not consent to its removal.

Dr. E. R. Neeper, of Colorado Springs, reported the case of a man who gave a negative history except for an attack of gonorrhœal rheumatism eight years ago. He came to him complaining of "distress" in O. D. for a week, which was becoming more severe, pain over and in the eye being prominent. The physician who came with him said that that morning the tension in the eye was increased.

The cornea of the right eye was steamy, and anesthetic, and as near as could be seen the pupil was dilated and fixed. The tension was not above normal. An ophthalmoscopic examination was impossible. He was ordered a solution of pilocarpine, which relieved the pain, with slight clearing of cornea, when the pupil was found fixed by posterior synechia. He then put him upon atropine and pushed it with rapid clearing of the corneal haze, and as the pupil dilated it was found that an exudate had filled the pupil which became plainly visible as it fell into the anterior chamber. It rapidly became absorbed. The eye became quiet and rapidly cleared up. The corneal anesthesia disappeared shortly after the atropine was begun.

Discussion.—Dr. Stevens thought that Dr. Neeper's case was one of gonorrhœal rheumatic iritis.

Dr. Bane showed a magnet that was made for him by a local electrician by the name of Carstarphen. The magnet was patterned after the description of Sweet in the *Journal of the A. M. A.* August 30, 1902.

Dr. Black called attention to eversion of the puncta from the use of nose glasses that caused skin tension between the nose guards and the inner canthus of the eyes. He had observed many cases who complained of conjunctival irritation and epiphora, that were immediately relieved by changing the adjustment of the guards, or changing the guards to one of another pattern. When the skin of the nose is very loose any form of guard will cause this skin tension, and spectacles only should be worn.

MELVILLE BLACK, Sec'y.

CHICAGO OPHTHALMOLOGICAL AND OTOLOGICAL SOCIETY.

REPORTS OF MEETINGS OF OCT. 9TH AND NOV. 11TH, 1902.

BY BROWN PUSEY, SECRETARY.

Dr. Wm. H. Wilder, President, in the chair.

Dr. Abele read a paper on *"Conjunctival Covering, According to the Method of Kuhnt."* After giving a short review of the history of the method and having surveyed the technique recommended by Kuhnt, he considered the special employment of the proceeding, which, as is well known, consists in covering losses of substance and wounds, either of the cornea or region of the limbus or sclera, with conjunctiva bulbi taken from the neighboring parts.

The action of the conjunctival covering is a triple one: 1. The conjunctiva is a good substitute for lost corneal tissue, *i. e.*, a kerato-plastic action. 2. It serves as a protection against infection and re-infection, *i. e.*, a mechanic-aseptic action. 3. By means of its elastic pressure the transplanted conjunctiva causes a good adaptation of the lips of the wound, *i. e.*, a purely mechanic action.

Of course the area to be covered has to be prepared in the proper manner: Torn wound edges and prolapsed iris must be excised; ulcerations have to be scraped out and swabbed with an antiseptic solution, and great care has to be taken that the conjunctival flap lies smoothly on the surface of the defect.

In nearly all his cases, Dr. Abele employs a flap with double pedicles which bridges the cornea and which can be properly fastened on the desired spot; only in such extensive injuries where the area to be covered is so large that the flap would have to be wider than about 7 mm., does he prefer to use the method of covering the cornea totally or nearly totally by drawing together the conjunctiva from opposite sides and suturing it.

For cosmetic reasons later on the conjunctival flap may be severed at those places where it has not united with its base. In the total covering the sutures usually cut through in 5 or 6 days, and the conjunctiva gradually retracts again to the scleral parts of the bulb, but not before having done its duty in covering the wound till healing has set in.

In consideration of the special conditions of practice in this country, Dr. Abele puts the indications as follows: 1. In such peripheral corneal ulcers as threaten to perforate or have perforated and which cannot be brought to a standstill by our ordinary methods. 2. In perforating wounds of the region of the limbus with incarceration or prolapse of portions of the uveal tract. 3. In fistula and staphyloma corneae. 4. After cataract extraction in filtration scar where the wound would not close within a reasonable time, furthermore in secondary iris prolapse after bursting open of the wound and finally in beginning infection of the wound lips. In such cases Dr. Abele has seen very favorable results.

Discussion.—Dr. H. V. Würdemann (Milwaukee, Wis.) said that his experience with the use of conjunctival flaps over corneal lesions was limited to aseptic wounds about the ciliary region, which were not of sufficient depth or severity to imperil the contents of the eyeball or to give rise to sympathetic ophthalmitis, in which, after cleansing the wound, he dissected up the conjunctiva, drawing it over the solution of continuity. In one case of fistula of the cornea, the use of the conjunctival flap, after curettement, was successful in causing healing of the fistula. He would earnestly protest, on theoretical grounds, to the use of the method for ulcerative corneal processes, as he esteemed the locking up of pathogenic germs in the tissues an unscientific method. The first principle of treatment of ulcerations was to remove the secretions by free drainage and the ordinary antiseptics. Curettement and cauterization were not only fairly satisfactory in practice, but were scientifically correct.

Dr. Hotz finds the occasion for the use of conjunctival flaps very limited, certainly far less frequent than one would expect from reading Kuhnt's publications. In the first place, in this country we seldom see those serious scrofulous ulcers, and, in the second place, our patients are not willing to submit to operations if they can be cured by other means. The great majority of corneal ulcers that we have to deal with heal readily after a few touches of protargol, iodine, or carbolic acid, and the use of atropin and a bandage. In the graver forms of infectious ulcers, a flap should certainly not be used until we are sure all germs have been destroyed, but when this is accomplished, the repairing process goes on very promptly without conjunctival covering. In corneal wounds with iris prolapse and in excision of small staphylomata the conjunctival flap is of great value.

Dr. Thomas Faith said that he did not favor the method in ulceration of the cornea or in delayed union after cataract extraction. In perforating injuries of the globe, where any part of the uveal tract is implicated he would favor giving the method a trial, as the present methods of treating such cases are so very unsuccessful.

A short time ago he looked up the cases of this character which have come under his personal care and his records show that in thirteen cases all have lost the eye injured but three, and this in spite of the fact that some of them were seen within a few hours after the injury.

In closing the discussion of his thesis, Dr. Abele, commenting on the employment of the method in cases of corneal ulcerations, said that he has seen quite a number of instances where the conjunctival covering has undoubtedly prevented peripheral perforations. Regarding the dangers of such a perforation, which naturally always will be followed by an iris prolapse or at least by an anterior synechia he thinks that a method which is able to avoid those dangers for the eye should at least be given a fair trial.

Dr. Abele thinks that in this country those peripheral ulcers tending to perforation may not be so frequent as abroad, because the hygienic conditions for the lower classes of people may be better here.

He was very glad to see that the value of conjunctival flaps in perforating injuries has been fully recognized by the discussion, and he was sure that the results in Dr. Faith's cases would have been better if a conjunctival flap had been employed.

Of course, if during the injury itself an infection primarily has taken place in the deeper parts not accessible to excision, we cannot expect much from the conjunctival covering, which, of course, can only prevent a secondary infection.

Removal of an Iron Chip from the Iris.—Dr. Hotz showed a young man from whose left eye he had extracted a piece of iron lodged in the iris. Twelve years ago, while pounding a rock with a hatchet, a small chip from the hatchet struck the eye, cutting through the cornea and lodging in the iris. The eye recovered very quickly from the traumatism, retained perfect vision, and remained well for many years. But during the past two years it had repeated attacks of slight inflammation and the patient was referred to Dr. Hotz to have the iron removed, if possible, without excision of the iris.

The foreign body, a small, rust brown, square chip, rested in the temporal portion of the iris just above the horizontal meridian. The operation, under cocaine, was performed a week ago; the incision with the keratome, at the temporal margin, was made so that the iron was opposite the center of the wound, the idea being that if the iris should be expelled by the aqueous humor, the chip would be carried with it out of the eye. But when the knife was withdrawn the iris portion above the iron came only, while the portion to which the iron was attached was dragged downward behind the lower angle of the wound. The curved tip of a small magnet was introduced under the prolapsed iris and the iron with the attached iris drawn out. The chip firmly clinging to the magnet, the iris was detached from it by gentle manipulations of a sprid and pushed back into the anterior chamber.

A slight traumatic inflammation of the temporal portion of the iris ensued, but was readily controlled by atropine; the eye now is fully well, with normal pupil. The iron chip weighs 2.7 milligrams.

Discussion.—Dr. Young (Burlington, Iowa) said that about eight years ago, when even small magnets were uncommon, he was called upon to operate for removal of a chip of steel lodged (recently) in the upper nasal quadrant of the iris. He proposed the usual iridectomy, and while waiting for the cocaine to act, he slipped the blades of his iris forceps between the poles of a common horseshoe magnet (thereby making an armature) with the thought that in the event of accidently dislodging the chip before he could seize the iris and draw it out, he would have, if the forceps were magnetized, an additional chance of getting hold again. He succeeded in grasping the iris and foreign body satisfactorily; but just as withdrawal was about to be accomplished there was a "giving away" and the forceps came out without any iris. The foreign body, however, was held securely in the bite and remained adherent when the grasp was relaxed. The eye made an ideal recovery, and he was congratulated by a well known oculist on his happy thought of magnetizing the forceps.

Transplantation of Skin for Pterygium.—Dr. Hawley showed a patient on whom an operation had been done by Dr. Coleman and him to remove a large pterygium. The condition was complicated with symblepharon, below and above, which greatly interfered with the movements of the globe. Other operations had been done to relieve the condition, but were unsuccessful. Dr. Hawley said that a former attempt at skin grafting in this case was a failure because the graft was too thick and it was not anchored. He said that success depended on getting a very thin graft, having it large enough, and properly stitching it. Dr. Hawley has done this operation many times, and recommended it for large pterygia, saying that it was not difficult and that the most exacting part of it was the sewing of the graft to its new bed. He said that we are indebted to Dr. Hotz for bringing the operation before the profession.

Discussion.—Dr. Young (Burlington, Iowa) said that it was axiomatic with him that just in proportion as he gets the growth removed thoroughly or otherwise from the sclera at the corneal margin, his result is satisfactory or otherwise. In regard to the pathogenesis of pterygium, Dr. Young called attention to the theory of simple hyperplasia from continued exposure, and he said that this theory was more tenable, as he long ago pointed out (*American Journal of Ophthalmology*, Vol. IV, p. 302), than the idea, which was referred to, of pterygium developing in the healing of marginal corneal ulcers.

Dr. H. W. Woodruff said that the McReynold's operation (see *Journal of Amer. Med. Association*, August 9th, 1902) will do all that skin grafting will do in preventing the recurrence of pterygium.

Dr. E. F. Snydacker reported a case of *foreign body within the eye*, which was embedded in the retina below and to the nasal side of the optic disc and had become enveloped in exudate. The Haab magnet exerted no effect upon it. The Roentgen ray picture shows the body very plainly.

Discussion.—Dr. Colburn spoke of a patient, who, while employed at a lathe, was injured by receiving a foreign body into the right eye. The wound of entrance could not be made out. The lens was clear, and there was no evidence of the transit of the metal through the cornea, though the injury was received but three days before he first saw the patient. With the ophthalmoscope the piece of brilliant metal could be seen lodged upon the retina about midway between the macula and the disc. There was no evidence of disturbance of the circulation surrounding the body, and no exudate. The patient remained under observation for some time. As there was no evidence of disturbance or oxidation of the metal, he was discharged.

Dr. Colburn saw the patient two years later and, aside from a small, grayish tumor, which must have been the encapsulated fragment, there was no evidence of disturbance and the vision was 20/20. He did not know the subsequent history of the patient.

At the invitation of the Attending Surgical Staff of the Illinois Charitable Eye and Ear Infirmary, the meeting of Nov. 11th was held at that institution.

Dr. Charles H. Beard showed a patient operated on by him for *ptosis* after a method he has employed, with great satisfaction, for some years. The method consists in adding to the original Pagenstecher, plus De Wecker, plus Hess, operations, the principle involved in the Hotz entropion operation. Briefly described—Incision throughout entire sulcus, including integument and orbicularis, down to bare tarsus, exposing, by dissection, tarsus down to free border, and tarsus and tarso-orbital facia above well up, but removing no piece. Lastly, two No. 3 black silk, double armed sutures are introduced, first down through the lower flap, next through a horizontal fold of the tarso-orbital fascia (or septum orbital), thence, beneath the skin and muscle, and brought out well above the supercilia, where the sutures are tied, in bow-knots, over cylinders of gauze. The folding of the deep fascia serves to shorten the superior ligament of the tarsus; also to limit the extent to which the edges of the flaps are drawn upwards. The point at which the fold is made will be decided by the degree of the ptosis. The sutures, although they may be tightened up a time or two, are not made to cut their way out, but are removed after five to seven days. It is necessary, in drawing up the threads, to see that the free edges of both skin flaps are directed backwards, *i. e.,* that they are in apposition, not each with the other, but with the underlying fascia. Thus the scar is hidden in the sulcus.

Discussing Dr. Beard's case of ptosis operation, Dr. Hotz said the tarso-orbital fascia unites with the levator tendon about one centimeter above the superior border of the tarsus, and the resultant aponeurosis spreads out over the anterior surface of the tarsus down to the middle. If this aponeurosis is taken up and excised up to or even beyond the upper tarsal border and the cut end of the aponeurosis is brought down and sutured to the middle of the tarsus, we practically shorten by this resection and advancement the tarso-orbital fascia as well as the levator muscle; both exert a stronger traction upon the lid, the tarso-orbital fascia tending to draw the lid upwards; the levator tending to draw it backwards; the resultant of both forces then makes the lid slide back and up. This operation accomplishes at once what Dr. Beard achieves by the long and painful process of his ligatures.

Dr. H. W. Woodruff showed three cases.

1. *The Restoration of a Cul-de-Sac by a Skin Graft.*

An eye was lost and both culs-de-sac were obliterated, from an unknown cause, when the patient, was an infant. Dr. Woodruff restored the lower cul-de-sac. A graft was taken from the leg and was at once placed on a plate of sheet zinc properly cut and shaped to fit an artificially made cul-de-sac. The graft was pushed into place, and the plate and graft were held to the lid by sutures.

2. *Keratitis Punctate Profunda.*

3. *A Case Operated on for Pterygium by McReynold's Method.* The case was operated upon one week before it was shown to the Society; it showed remarkably little reaction.

Dr. Wm. H. Wilder exhibited the following cases:

CASE 1.—A man, seventy-four years of age, who, one year ago, developed an attack of *acute glaucoma* in the left eye, which became totally blind eight months later. He was admitted to the Infirmary

October 3, 1902, with R. V. 20/70 and L. V. 0. The fields of the right eye were contracted and the tension was slightly increased. The tension of the left was +3. The vision and fields improved slowly after the use of eserin. On Oct. 20, 1902, the right superior cervical sympathetic ganglion was removed. Immediately afterward the pupil, which had been of medium size, contracted and the vision and fields improved. At the time of the exhibition of the case, R. V.=20/40. The immediate results of this operation were good, but a report of the case will be made several months later, when the final results are observed.

Case 2.—A man, forty-five years of age, was admitted to the Infirmary, July 15th, 1902. The *right eye was totally blind* as the result of an inflammation twenty-four years ago. The sight of the left eye had been good until three days before his admission to the house. He reported that he became very much overheated while engaged at his work, which had to do with preparing linseed meal. While thus overheated he was exposed to a draft of cold air, which came into the room where he was working. This draft of cold air struck him on the side of the face and head, to which he attributes the sudden blindness that ensued on that same evening. There was no history of toxic origin, and he said he was a very moderate drinker and smoker. When first seen at the Infirmary, there was complete blindness of the left eye, so that he could not even distinguish hand movements in any part of the field.

Catharsis, diuresis and counter irritation on the temporal side of the head was practiced immediately after his admission. Five days later his sight gradually returned. Ten days later he was able to count fingers at six feet. Potassium iodide in large doses, varying from twenty to sixty grains, three times a day, was administered. Two weeks after admission he had vision of 20/200 and in three weeks had improved so that his vision was 20/20. The fields are nearly normal, although the disc shows a grayish pallor.

Case 3.—A man twenty-seven years of age, suffering from *tobacco amblyopia,* with noticeable pallor of the temporal sector of each optic disc. Under treatment, the vision in each eye had improved from 20/100 to 20/30, and at the present time, there is no central scotoma for colors.

Case 4.—A man, 68 years of age, upon whom had been practiced the *McReynold's operation for the removal of pterygium.* A large pterygium had been removed from the inner side of each eye with excellent results.

CASE 5.—A young man, twenty years of age, who had *divergent concomitant strabismus of twenty-five degrees.* A considerable piece of the tendon of the internal rectus had been resected and the muscle advanced, with the result that the optic axes are now normal, and the patient has binocular vision. A test with the Maddox rod shows that there is about two degrees of esophoria.

SECTION ON OPHTHALMOLOGY—COLLEGE OF PHYSICIANS OF PHILADELPHIA.

Meeting, November 18, 1902. Dr. B. Alex. Randall, acting chairman, presiding.

Dr. Wm. Campbell Posey presented a case of so-called *"Intermittent Exophthalmos."* The patient, a healthy man 20 years old, had the power to voluntarily proptose his left eye to a very marked degree. Both eyes were deeply set, the left especially, which presented a slight degree of enophthalmos. When pressure was made upon the eyeballs, both receded into the orbit. This was also more marked upon the left side.

When 4 years old it was noticed that the left eye bulged forward whenever the stooping posture was assumed or after violent effort. This condition persisted until he was about 11 years old, when he found he could proptose the eye by taking a deep inspiration and holding his breath, by making any violent muscular effort, or by pressure upon the root of the neck.

For a short time after deep inspiration no movement is observed in the eye, but soon the globe begins to move slowly but steadily straight forward until it has advanced about 15 mm. in front of its fellow. When the proptosis has attained its maximum degree, there is considerable bulging of the lower lid, with signs of venous engorgement in the lids. At this time, too, it is noticed that the base of the neck becomes greatly enlarged and a huge engorgement of the lateral thyroid lobes simulated. While the inspiration is maintained, the heart-sounds cease, the cardiac arrest continuing for at least 15 seconds. Vision is normal in both eyes, but when the left eyeball is extruded sight is somewhat blurred on that side. The ophthalmoscopic findings were normal, save for a slight tortuosity of the retinal veins in each eye. When the proptosis is at its height, however, the retinal vessels in that eye became fuller and more cord-like.

Rhinological examination showed the left fossa to be obstructed by hyperemic turbinals. Both antræ were clear in the trans-illumination test until the eye was proptosed, when the light entirely disappeared from the upper part of the face, especially on the left side.

Dr. Posey thought that the condition could be explained by a dilatation of the veins at the back of the orbit, in connection with some disturbance in the supply of the jugular vein on that side. He said that the patient had come to him complaining that the eyeball was loose in its socket, and that the tendency which the eyeball had to drop forward annoyed him greatly in the ordinary routine of daily life. He was unable to suggest any operation or therapeutic agent which would be of service.

Discussion.—Dr. Harlan stated that the symptoms pointed to a vascular disturbance in the orbit, probably an angioma. Dr. de Schweinitz said that the case resembled some previously reported, in which there was alternating enophthalmos and exophthalmos. In regard to the suggestion that injections of paraffin might give support to the dilated orbital veins, Dr. Randall remarked that, while agreeing with other members of the Section that it was a good plan to let the condition alone, he did not believe there was any danger to be feared in these injections, unless a substance having a low melting-point was employed. There was no risk of venous thrombosis in using orbital injections of paraffin of a melting-point of 107 degrees.

Dr. Posey also reported two cases of *Congenital Anomalies of the Eyes,* illustrating the transmission of such defects from mother to daughter. The mother had typical coloboma of the iris in both eyes, associated with complete coloboma of the optic nerve and choroid in the right eye, and a cup-shaped depression in the lower outer part of the nerve of the left eye. The daughter had a coloboma of the iris in the right eye and corectopia in the left. The fundus of the left eye was normal, but in the right there was a colobomatous formation in the choroid, just below the optic nerve. While the cases illustrate the transmission of anomalous conditions from parent to offspring, the chief point of interest centered in the fact that the transmission was from a typical coloboma in the mother's eyes to anomalous formations of lesser degree in the daughter's eyes. In explanation of these conditions, he called attention to the paper which he read before the Ophthalmological Section of the American Medical Association, June, 1897, in which it was shown that all anomalous conditions of the iris could be traced to an improper development of the vascular framework of the iris.

Discussion.—Dr. Randall referred to two cases of congenital aniridia he had seen in a mother and daughter, the condition being complete in the former, and nearly so in the child.

Dr. G. E. de Schweinitz spoke of the *Disappearance of the Lesions in Circinate Retinitis*, and referred to 3 cases of the disease, two of which he had previously reported to the Section. In the first case there was a partial disintegration of the circinate deposit at the end of 5 months, but increase in the macular exudate; the patient was not again seen. In the second case there was complete disappearance of the circinate lesions at the expiration of a year, and marked diminution in the extent of the macular disease, with decided improvement in vision. In the third case there was no change at the expiration of 3 months; the patient was not again seen.

Dr. de Schweinitz discussed the various theories which have been advanced to explain this affection, and thought that, while the original hemorrhagic nature of the disease could not be denied, retinal hemorrhages alone did not explain all cases; that it was probable that both the central exudate and the ring of deposit could be attributed, as Oeller and others had done, to disease of the smaller macular vessels, especially the arteries. He referred to De Wecker's assertion that true white degeneration of the retina was always progressive, but thought, nevertheless, that some varieties of the affection, perhaps not quite typical, should be classed with this affection, and that among them were examples in which the lesions might disappear, as Fuchs had originally pointed out. He suggested that Marcus Gunn's theory that circinate retinitis was simply an expression of a long-standing edema, in its turn dependent upon a central retinal inflammation, might explain those cases in which there was a disappearance of the spots, but when the macular vessel disease was so great that destruction of the parts had occurred the lesion was necessarily permanent.

Discussion.—Dr. Hansell stated that the first case referred to by Dr. de Schweinitz had returned to the Jefferson Medical College Hospital a few weeks ago, and he found upon examination that there had been a complete disappearance of the circinate lesions. He considered that, while minute hemorrhages from the smaller capillaries might be a causative factor in some of the cases, a certain proportion could be explained by a fibrous exudation, similar to that seen in inflammations of the cornea and other ocular structures. In studying these finer retinal changes he regarded the Thorner ophthalmoscope of especial value, and much superior to the hand instrument.

Dr. Randall remarked that in annular retinitis occurring in children, the microscope failed to show more than edema of the retinal structures. Dr. de Schweinitz thought it was impossible to find one theory that would account for every case. Hemorrhages do occur, but they do not explain all the cases. It is quite possible that both fibrous exudation and hemorrhages may contribute to the causation of the affection. One of the patients whom he had examined for Dr. Dercum suffered from adiposa dolorosa. As the disease is one in which hemorrhagic and fatty changes occur, Dr. Dercum thought that there might be a relationship between the ocular condition and the systemic affection.

Dr. de Schweinitz showed a series of eyeballs mounted in formalin and in glycerin jelly exhibiting *Various Lesions after Injury,* as follows:

1. Rupture of the eyeball from a blow with glass, with a piece of the broken glass retained within the coats.

2. Metallic foreign body embedded in the anterior portion of the choroid, which had been retained for fifteen years.

3. Phthisis bulbi the result of an explosion of powder with embedded powder grains in the sclera and corneoscleral junction, but none within the coats of the eyeball.

4. Iridocyclitis following foreign body in the vitreous (piece of copper) which had been removed. The eye was moderately quiescent for 8 months, when there was renewed cyclitis, and enucleation was rendered necessary. The specimen showed old iridocyclitis, intraocular hemorrhages, new and old, together with atrophy of the optic nerve and degeneration of the retina.

5. Iridocyclitis caused by a large piece of steel embedded in the vitreous for several weeks and then removed with the magnet. Gradual shrinking of the eye rendered its enucleation necessary. The specimen showed an in-drawn scar, detachment and disorganization of the retina, and cyclitis.

6. Iridocyclitis of the left eye caused by a penetrating wound of the lower ciliary region made with a pointed stick. The specimen illustrated the formation of cyclitic membrane.

7. Iridocyclitis following a blow upon the eye with a blunt instrument which had originally caused traumatic glaucoma and was followed later by cyclitis and the formation of a scleral staphyloma.

Dr. B. Alex. Randall briefly mentioned *Some Aids in Locating and Removing Foreign Bodies of the Cornea.* He referred to the difficulty experienced in seeing minute foreign bodies on the cornea by the usual method of focal illumination, and the superiority of examination by transmitted light with the ophthalmoscope and its strong magnifying lenses. He had occasionally found that not only could the foreign body not be detected by other measures, but that after it had been precisely located it was still not possible to see it for smooth removal except with the ophthalmoscope. The employment of a special handle for holding the instrument in the mouth and setting both hands free had therefore proved of great value for this purpose as well as for the study of the eye-ground while making drawings of it. He also showed a very strong concave mirror devised for study of the iris and anterior portions of the eye in the highly magnifying image, which he had found likewise valuable for detecting minute foreign bodies upon his own cornea which others were hardly able to see. It is occasionally important thus to point out to a patient the presence of a foreign body, and it might be that the patient would see and locate it for himself when other means in the hands of the surgeon had failed. The mirror consists of a plano-convex lens of 20 D., silvered upon the curved surface. This gives an image quite as good as though it had been an especially ground meniscus, usually employed for such purposes, and seems to magnify more by reason of the combination of mirror and lens. He had not worked out the optics of this combination.

Dr. Wm. Zentmayer presented a case of *Herpes Zoster, Ophthalmicus,* which had occurred in a man aged 76 years. The vesicles were distributed over the scalp, eyelids, and side of the nose. There was ulceration of the cornea and a low grade iritis. On the thirty-third day of the disease absolute paralysis of the internal rectus and of the levator occurred, with partial paralysis of the inferior and superior rectus. The age of the patient and the use of a mydriatic in the treatment of the inflammatory condition made it impossible to determine whether or not the internal muscles were also affected. One year later there was still weakness of the internal rectus and of the levator.

William M. Sweet,
Clerk of Section.

Ten thousand dollars is the value of an eye, according to a verdict for damages awarded by a jury in the Brooklyn Supreme Court in favor Frederick H. Dittman. The plaintiff was employed by an electrical company and was injured by a broken belt on the machinery.

NEWS ITEMS.

PERSONALS AND ITEMS OF INTEREST SHOULD BE SENT TO
DR. BROWN PUSEY, 31 WASHINGTON ST., CHICAGO.

Dr. Wendall Reber is the president of the Northwest Medical Society of Philadelphia.

Dr. T. A. Woodruff has been appointed Ophthalmologist to St. Luke's Hospital, Chicago.

Dr. Wilbur B. Marple has been appointed Surgeon to the New York Eye and Ear Infirmary.

Dr. A. N. Alling has been appointed Clinical Professor of Ophthalmology in Yale University.

Personals and Items of Interest Should be Sent to Dr. Brown Pusey, 31 Washington street, Chicago.

Dr. Braunschweig, of Halle, Germany, has received the honorary title of Professor of Ophthalmology.

Dr. Chas. A. Oliver, of Philadelphia, has been elected Honorary Member in the Mexican Ophthalmological Society.

Mr. E. Treacher Collins has been appointed Ophthalmic Surgeon to the Charing Cross Hospital and lecturer on ophthalmology at the medical school of that hospital.

Dr. Frederick C. Heath made the address of welcome at the formal opening, on October 31st, of the new building of the Central College of Physicians and Surgeons of Indianapolis.

An operation for cataract on a Calabrian wolf was recently done at the Lyons Zoological Gardens by Dr. Rollet. With the oncoming of blindness the animal had become very ferocious

Dr. George Bull, of Paris, France, is Secretary of the Continental Anglo-American Society—an association of English speaking physicians residing in continental Europe and Northern Africa.

In the recently organized Naval Medical School—a school for special instruction of newly appointed medical officers of the U. S. Navy—P. A. Surgeon T. D. Myers, U. S. N., will have charge of the department of ophthalmology.

In Tufts College Medical School, the Department of Ophthalmology, under the charge of Professor H. B. Chandler, has been enlarged by the election of Dr. F. L. D. Rust as Assistant Professor, and Drs. E. T. Easton and H. C. Parker as Instructors.

In the recently organized Post-Graduate Medical School, Washington, D. C., Dr. Swan M. Burnett, Dr. E. O. Belt, Dr. Wm. K. Butler, Dr. W. H. Wilmer, Dr. Wm. H. Fox, and Dr. D. Kerfoot Shute are professors in the department of ophthalmology; Dr. C. R. Dufour is adjunct professor.

The Manhattan Eye and Ear Hospital has opened a school for post-graduate work in the branches treated at that institution. The school year will extend from October 15th to July 15th. Many of the prominent surgeons of the hospital will teach. Dr. Lewis A. Coffin is secretary of the school.

Memorial services in honor of the late Dr. Aaron Friedenwald were held at the McCullah Street Synagogue, Baltimore, on November 9th. Addresses were made by Rev. Drs. Mendes of New York and Schunberger of Baltimore and Cyrus Adler of New York. The medical career of the deceased was discussed by Dr. Solomon Solis-Cohen of Philadelphia.

A New Eye Disease.—A new and peculiar eye disease, called the "gas eye," is prevalent among the employes of the gas pumping stations throughout the gas belt in Indiana. The pain is severe and physicians are unable to determine the cause of the disease. Men working around the big gas compressors are in escaping gas all the time. Their eyes become inflamed, tender, and it is almost impossible to expose them to the light. Permanent injury to the eyesight has resulted in several cases.—(*American Medicine*, Nov. 29th, 1902).

"*Injury Made It Necessary to Treat It in That Way and Then Replace It for Charles Bird.*—Charlie Bird was compelled to undergo a very painful surgical operation last Sunday. Some time ago he was struck in the eye by the horn of a cow, which he was leading from the pasture; this caused him considerable trouble, and the same eye was again injured by the kick from an overloaded gun which he was using. Inflammation set in, which made it necessary to remove the member, scrape it and put it back, which was a very painful operation. At last reports he was doing as well as could be expected, and it is hoped he will not lose his sight."! !—(*Muscatine Journal,* Nov. 26th, 1902).

Remarkable Family History of Glioma.—In the *Australasian Medical Gazette* for May, Mr. R. Earle Newton has described one of the most extraordinary examples of family disease on record. A girl, aged two years, was completely blind. Each pupil was occupied by a nodular gray growth, which completely involved the lens and was growing forwards into the anterior chamber. The intraocular tension was greatly increased and the child was apparently in much pain. The patient was the youngest of a family of 16 children. Of these, two died within a month or two of birth from bronchitis, four are still alive and well, and the remaining nine had died from glioma of the retina. None lived beyond the age of three years, except one, who was operated on for a unilateral growth and who died from recurrence at the age of five years. In the only other case in which operation was performed the tumor recurred in a few weeks and was rapidly fatal. Of the ten cases three were unilateral and seven bilateral. This is interesting, as the percentage of bilateral cases is usually given as about 20. Of the seven children who died without operation, the eyeball ruptured in every case except one. Five of the cases occurred in males and five in females. One of the father's brothers was said to have died in infancy from some eye complaint.—*The Lancet*, Nov. 22, 1902.

New York Infirmary Forced to Close Department by Trachoma Epidemic.—The directors of the New York Eye and Ear Infirmary have agreed to close the throat department of the infirmary for an indefinite period. "We have been deluged with patients," said J. Harsen Rhoades, one of the directors, "and the institution no longer has the resources to treat them. We lack money and accommodations. The sum of $500,000 is urgently needed by the infirmary."

For nearly 28 years the throat department of the infirmary has been in existence, and during the last year it treated 9,600 new patients. While a limited number of old patients will continue to receive throat treatment, care for the thousands of future applicants will devolve upon the other dispensaries in this city. According to Dr. Richard H. Derby, the primary cause for the closing of the throat department is due to the fact that ninety-two inspectors from the Board of Health are sending hundreds of school children daily to the dispensary. "Owing to the epidemic of trachoma in the schools," said Dr. Derby, "we are fairly besieged by crowds of children accompanied by their parents. The crowds at times are fairly appalling.

"We had here on Saturday 301 new eye patients. They were mostly children, each one accompanied by several adults. On Monday we had 212 new eye patients, on Tuesday 179 and to-day 187. These were exclusive of the old patients and the applicants to other departments. The city should really take charge of the school children suffering from eye diseases. If it did, the epidemic of trachoma would quickly be ended. Dr. Lederle, of the Health Department, approves of some such plan, and he is in favor of the city making a per capita allowance for that purpose."—(*Medical News*, Dec. 6th, 1902).

NYCTALOPIA (RETINITIS PIGMENTOSA) OCCURRING IN FIVE GENERATIONS.—Mr. Simeon Snell mentioned a case (at a meeting of the Ophthalmological Society of the United Kingdom) of a man, aged 46, who since childhood had found great difficulty in going about in the dark. Though gradually failing, the sight had become so bad during the last two years and a half that he was incapable of following his occupation. He was now incapable of finding his way about in the dark, the R. V. 2/60, and the left 1/60. The ophthalmoscope disclosed a typical picture of retinitis pigmentosa. The peculiar interest centered in the fact that he was a member of a family in which large numbers were similarly affected with night blindness. The first who was known to be affected was his great-grandfather. He left an only daughter, who was afflicted and from her had descended numerous instances of nyctalopia. Beginning with the great-grandfather, there had been a total of 69 individuals, and of this number there was good evidence that 28 were affected with night blindness. The patient's father had 11 children, 5 were afflicted and 6 were normal sighted; the patient himself was the father of 11 children, 7 being affected, namely, 5 boys and 2 girls, the rest escaped. There was no evidence of consanguinity in the family. Nyctalopia descended in all instances without a break, no generation was skipped over, and it ran equally through the male and female lines. There was no instance of a normal-sighted son or daughter by the grandmother having transmitted the malady to their children or grandchildren. Fifteen of the afflicted ones were females, ten males, and of three the sex was not ascertained. Night blindness showed itself in early childhood. At about the age of 40, some more and some less, the affected ones had become practically blind.—*British Medical Journal,* Nov. 22, 1902.

OPHTHALMOLOGY.

The Treatment of Convergent Squint in Hospital Practice.—James (*Lancet,* August 2, 1902) writes on the treatment of this condition. He contends that the most important reason why the treatment of convergent squint is so unsatisfactory is that no stereoscope of suitable construction and small cost is at the command of the ordinary hospital patient for home use. The author presents a description, which is accompanied by an illustration of the stereoscope. He writes that this instrument is constructed of the cheapest material and can be used in cases of convergence of higher degree. It consists of 2 mirrors, 8 centimeters square, united by a hinge. To the lower border of each mirror is attached a brass bar, 15 centimeters long, with a clamp obliquely placed at its extremity. The bar is freely movable, but can be fixed at any angle to the mirror by a toothed stay which gives additional firmness. The angle at which it is usually placed is 115°. When not in use, the hook is undone and the instrument can be folded into a convenient shape. The stereoscope figures employed vary much in size according to the visual acuity and youth of the patient. Duplicate colored scrap figures on glass slides are very useful, parts of each figure having been carefully cut out. It is of great service to use letters on each glass slide alongside or across the figures and leave gaps between them. On fusion in the mirrors they are seen as short words such as "Tom," "Bob," etc., and act as valuable controlling tests in children who can read. Almost any object the ingenuity of the experimenter may devise can be adapted to the instrument. The ordinary photographic views in the shop can be employed. They are first cut in half and transposed, right half in left clamp and vice versa. Controlling dots are useful, of course, with these. The oblique position of the clamps presents the object nearly square in the mirror to the observer and facilitates their fusion.—*Phila. Med. Journ.*

VISION TESTING IN LONDON SCHOOLS.

Early this year the school board for London appointed eight oculists (on February 13th and April 24th) to pay 200 visits to schools under the control of the board with the object of testing the vision of the children. The medical officer of the board has now presented the following report of the work done up to the beginning of the summer vacation beginning July 23rd:

The schools were divided into twenty-four sets, and each oculist selected a set to work at.

Note cards were provided on which particulars of the child's name, age, sex, standard, school, vision with right and left eyes, and treatment advised are recorded. Children found to have subnormal vision are given a green advice card on which treatment is recommended, and children with bad vision (less than one-third normal) are given a red advice card to take home, in which treatment is strongly advised. On the reverse of each of the advice cards the following general advice is printed, as it is useful in practically all eye troubles of children:

"You are cautioned against the grave risks children may incur by wearing glasses as prescribed by the various sight-testing establishments, certified opticians, chemists, toy shops, or any other than qualified medical men.

"In most cases of pustular eye inflammation, irritable or sore eyelids in delicate children, a piece of the ointment the size of a lentil in each eye at bedtime will be found of benefit. Any chemist will supply it, of the following composition: Powdered yellow oxide of mercury, 3 gr.; lanolin, 2 drachms; vaseline to half an ounce."

The oculists analyzed the note cards for their own work, and sent in a record of each school, showing age, sex, standard and efficient bad visual condition of every child examined; vision being 6/18 or worse, fair 6/12 or 6/9, good 6/6.

Owing to the trouble and time in testing the younger children, Standards I and II were merely inspected for obvious defects, and in only one or two schools have they been included by systematic examination. This will be done more completely in future.

The methods and extent of investigation adopted have varied with the examiner, but in respect to visual acuity which only we refer to now the method has been identical. Miss Sayer has, at the request of the medical officer of the board, also given several sessions to careful testing among 6-year old children in infants' departments.

A summary of the results so far obtained shows the proportion of defects to be distributed in different age groups as follows, expressed in percentages:

GIRLS (8,286).

Ages	6	7	8	9	10	11	12	13 and over.
Numbers noted	17	87	499	946	1,408	1,679	1,733	1,927
Fair	—	—	29.6	22.6	22.7	20.8	19.8	18.8
Bad	—	—	11.2	11.3	9.8	11.7	10.5	11.5

And for boys, also in percentages:

BOYS (8,959).

Ages	6	7	8	9	10	11	12	13 and over.
Numbers noted	5	69	582	1,127	1,639	1,717	1,808	2,012
Fair	—	—	24.0	17.5	17.0	14.2	13.9	13.2
Bad	—	—	9.3	7.2	8.0	7.4	8.2	8.0

When classified, not according to ages as above, but according to their standards, the following summarizes the results:

GIRLS.

Standards	I.	II.	III.	IV.	V.	VI.	VII.
Numbers	432	864	1,910	1,901	1,552	952	675
Fair	28.9	26.2	24.3	26.0	18.7	17.7	12.6
Bad	13.8	14.4	10.2	11.5	10.6	8.6	11.5

BOYS.

Numbers	456	892	2,312	1,814	1,678	1,079	728
Fair	23.0	22.6	14.8	14.5	11.8	10.7	9.2
Bad	10.0	8.4	7.3	7.7	7.4	8.7	7.1

Serious visual defect may therefore be said to be present in 8 per cent of the boys and 11 per cent of the girls, and to maintain about this proportion through school life.

With the numbers here dealt with a more minute analysis is scarcely justifiable, but on looking over the results of different groups of schools it may be said that the percentage with visual defect varies enormously, being small in the better class districts and greater among the poorer. It is also greatly influenced for the worse by the presence of children of foreign parentage.

Certain points are suggested as to the effect of eye work—for example, sewing among girls, and habits of near working induced by the academic methods, still prevalent in many infant schools—to which the oculists' attention will be directed in future, and also to filling up sufficiently the gap in our information regarding younger children.

So far the results in 17,245 children have been recorded. At first the rate of work is somewhat slow, but will be quicker from experience gained. In 200 sessions from each oculist, at the present rate of work, about 70,000 children will have been examined. It will, therefore, take nearly five years to examine all the children. The institution of an annual examination for all the children will be scarcely necessary, but the discussion of the future oversight of this matter had better remain till a fuller report, based on the work done up to the end of this year, can be submitted. *B. M. J.*

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